

GENERAL KNOWLEDGE 3

FOR CLASS III



SINDH TEXTBOOK BOARD, JAMSHORO

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TABLE OF CONTENTS

UNIT 1. THE EARTH AS A LIVING PLANET

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 The sun makes life on the earth possible

- Recognize that heat and light of the Sun helps to sustain life on Earth.

Chapter 2 The different kinds of habitats

- Define the term habitat.
- Describe the different habitats for living things (polar region, desert, forest, sea and rivers).

Chapter 3 The plants and animals that live in a desert habitat

- Identify the environmental factors (temperature, light, water) that supoport life in a habitat.
- Name plants and animals that live in Earth of the desert habitat.
- Identify the ways plants and animals adapt to their habitat (camel, cactus).

Chapter 4 The plants and animals that live in a forest habitat

- Identify the ways plants and animals adapt to their forests habitat (pine trees, insects).

Chapter 5 The plant and animals that live in a grassland habitat

- Name plants and animals that live in a grassland habitat.
- Identify the ways plants and animals adapt to their grassland habitat.

Chapter 6 The plant and animals that live in a cold habitat

- Name plants and animals that live in Earth of the cold habitat.
- Identify the ways plants and animals adapt to cold habitat.

Chapter 7 The plants and animals that live in a water habitat

- Name the plants and animals that live in water habitat (polar bear).
- Identify the ways plants and animals adapt to water habitat (fish, lotus).

Chapter 8 How human beings affect the natural habitats?

- Identify the ways human activities affect the natural habitats.
- Describe the effects of human activity on the habitats.

Chapter 1

The sun makes life on the earth possible

The sun gives out light and heat all the time. This light and heat is called solar energy. Since the sun is very far away from the earth, only a little part of this energy reaches our earth.



Fig 1.1 The sun giving off heat and light

The solar energy that we get from the sun is very important. It is because of this solar energy that life is present on the earth. It provides the light and heat required for all living things to live, grow and reproduce.

It helps plants to grow, provide animals and us (human beings) with food to live.

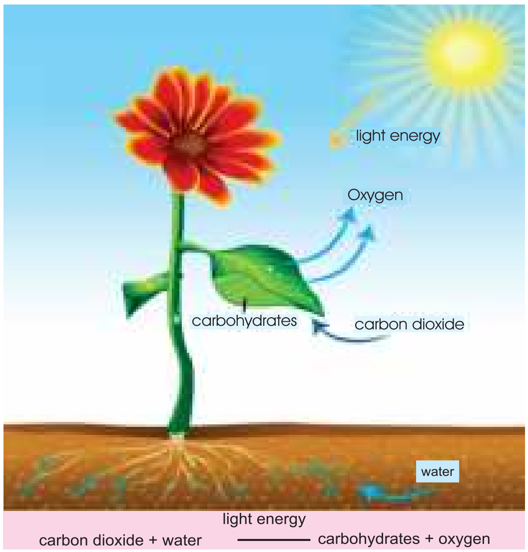


Fig 1.2 Plants using light to grow

ACTIVITY

Do the Plants need light to grow ?

Material required:

- Two small potted plants.

Procedure:



Fig 1.3 Two potted plants

1. What is the height of the plants? What is the the color and shape of the leaves? What do you think will happen to the plants, if you place one plant 1 in sunlight and plant 2 in the dark?

   I predict that plant 1 in the sunlight will ____________________.

   I predict that plant 2 in the dark will________________________.

2. Put plant 1 in the sunlight, and put plant 2 in a dark place.
3. Give the same amount of water to both of the plants daily.
4. What changes did you observe in the plants. Record the new observations below every 2 days.

Observations of Plants	Plant in sunlight			Plant in dark		
	Day 2	Day 4	Day 6	Day 2	Day 4	Day 6
Height						
Color of leaves						
Other changes						

5. Draw and color the pictures of how both plants look after a week.

Plant in sunlight	Plant in dark

6. Was your prediction correct?

   ____

Look at the fig. 1.4 it shows how the solar energy is used by the plant to make its food, and to grow. Animals eat plants as food. Human beings eat plants and animals for food.

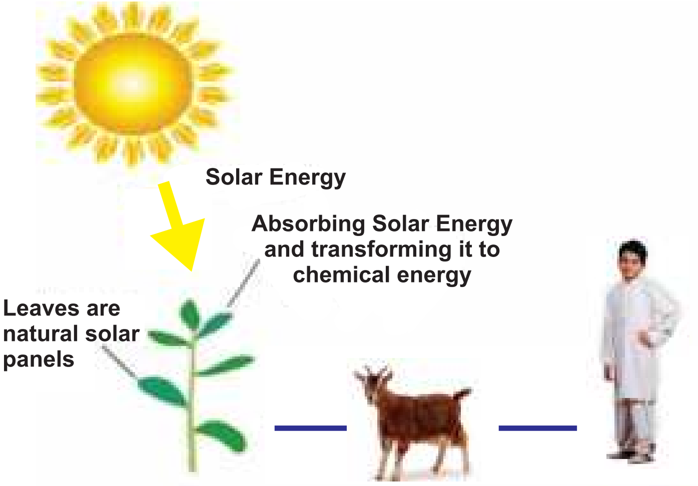


Fig 1.4 Solar energy used by the plant to make its food

Solar energy is also important because it provides us with fresh water through the water cycle. Look at the figure 1.5 and read the points below to learn how this happens.

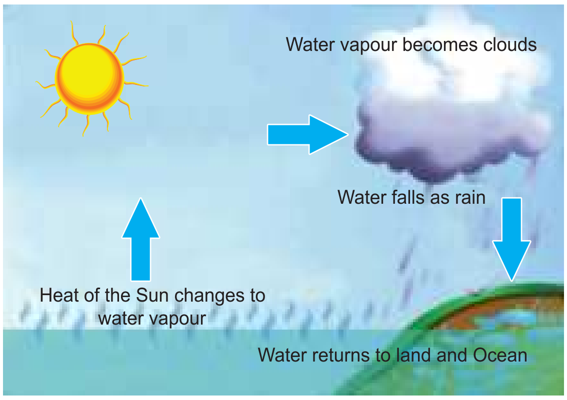


Fig 1.5 The water cycle

1. The sun heats the water in the ocean.
2. The water on heating turns to water vapour and rises in the air.
3. The water vapour cools and becomes droplets of water, which form clouds.
4. When the clouds become heavy with water, the water falls to the ground as rain and snow.
5. Some rain is stored in lakes and in the ground. The rest flows through rivers back into the ocean.

Chapter 2 The different kinds of habitats

A habitat is a place where plants and animals live and grow. A habitat provides the plants and animals that live in it with all their basic needs: food, water, shelter and space.



There are many different kinds of habitats on the earth. Each habitat is the home for many kinds of animals and plants. Look at the pictures of different habitats given below.



A desert habitat is hot and dry



A forest is a tree-covered habitat



A Grassland is a large, grassy space with some big bushes and tall trees



The polar region of the Earth is a very cold habitat


River


Wetland


Stream


Lake

Freshwater habitats are ponds and lakes, streams and rivers.


An ocean is a salt water habitat

Chapter 3 The plants and animals that live in a desert habitat

The desert is a hot and dry place. It gets very little rainfall. The desert is the home to many plants and animals. Plants and animals living in the desert face two main problems:

1. Lack of water
2. High Temperatures

Look at the pictures to learn how these animals and plants adapt to live in the desert.



The camel

The camel has

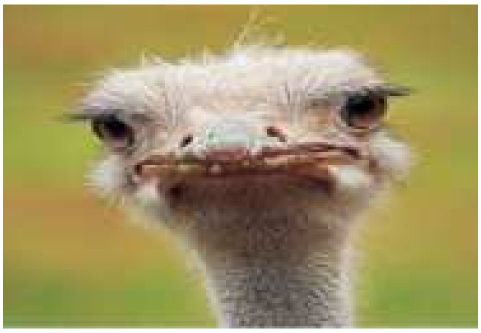
- long eye lashes to keep sand out of their eyes.
- wide feet for walking in the sand.
- a hump that allows to store food and water.



The desert tortoise

The desert tortoise

- stores fat in its body.
- shell protects it from its enemies.



The ostrich

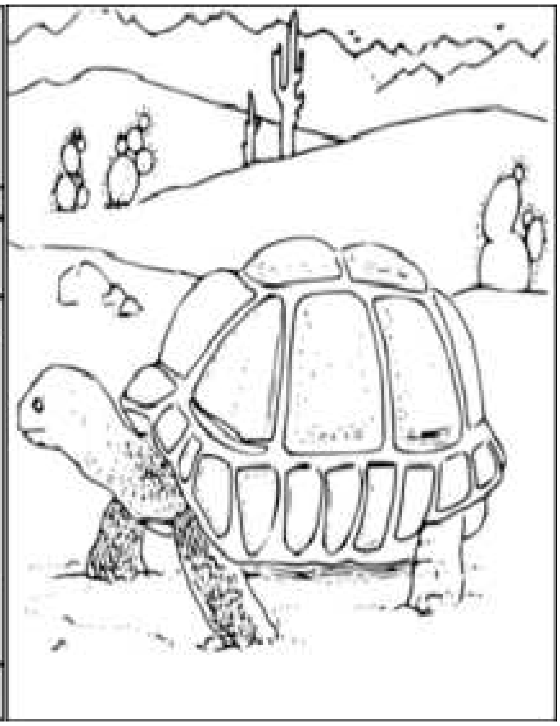
The ostrich has

- long eye lashes to keep out the sand.

ACTIVITY

1. Color the animals and their habitats given below





2. What is the name of this habitat?

____

3. What kind of habitat is it?

____

4. Write the name of the animals shown in the picture.

____

5. Write the name of the plants shown in the picture.

____



The cactus



The aloe plant



A large plant in the desert

Desert plants

- have sharp spines to protect them from plant eating animals.
- have few leaves or leaves with a waxy coating to reduce water loss.
- store lots of water when it rains.
- flowers open at night and close up in the day.
- have fruit used as food for desert animals.

ACTIVITY

You know that plants need water to grow. Bring a cactus plant and any other plant that grows. Put both of them in your school yard. Water both the plants every second day for a week. Record what physical changes you see in the plants.

Cactus plant	Other plant
______________	______________
What do you think? ______________	What do you think? ______________
Why did it happened? ______________	Why did it happened? ______________

Chapter 4 The plants and animals that live in a forest habitat

Forests are areas of land covered with trees. There are many forests around the world. Not all of the forests are the same. They are different because the climate, soil, and water are different.



A Deciduous forest has leafy trees



A Coniferous forest has trees with needle like leaves and cones



It rains almost everyday in rainforest

Forests are a good habitat as many different kinds of trees and plants grow in them. Many animals, birds and insects lives in forests too.



The monkey



The fox



The lion



The snake



The sparrow



The squirrel

Adaptations of plants in the rainforests

- Many trees in a forest grow very tall to get sunlight to make their food. They have long roots to support themselves.


Tall trees get sunlight


Plants climbing on others to reach the sunlight

- Plants that live on the floor of forest are adapted to live in shade and require less sunlight.
- Many leaves in a rainforest have a 'drip tip'. This helps the leaves to remove the extra water from the surface.


Plants on the forest floor


The pointed drip, tip of leaves to remove extra water from surface

Adaptions of plants in coniferous forests

- A common tree of coniferous forest is the pine tree. The leaves are needle like and waxy.
- The cones are the fruit with seeds in it that animal eats.


A pine tree


Cones on a pine tree

Chapter 5 The plants and animals that live in a grassland habitat

Plants and animals of the Grasslands

Grasslands are large open areas, covered with grass. Because of the large open areas covered with grass, grasslands are home to a large number of animals that like to eat grass and the leaves of trees. Some examples of the animals that live in grasslands are elephants, zebras, deer, bison, leopard and tigers.



The deer



The zebra





The leopard



The bison

The elephant

Adaptations of animals and plants to grasslands

In a grassland there are only a few places for animals to hide from their enemies. The animals have long legs to run very fast as those that run fast can keep safe from their enemies.


The bison running away from a lion


The deer running away from a leopard



- There are grassland animals hidden in the picture above. Can you see them?
- This is an adaptation by living things known as camouflage in which the animals blend themselves with their environment.

ACTIVITY

How does camouflage help an animal to survive in a habitat?

____

____

____

- The Baobab tree is a tree with a short and fat trunk. It is an adaptation by the tree to store water, which it uses during the dry season.



The Baobab tree in the rainy season



The Baobab tree in the dry season

ACTIVITY

Look at the picture of the Baobab tree above. It loses its leaves in the dry season.

Do you know why?____

____

____

Chapter 6

The plant and animals that live in a cold habitat

The polar regions (regions near the North and South Pole) of the earth are the coldest places on earth. The land is covered with snow and ice for most of the year. There are only a few small plants here. The penguins, polar bears, walruses and wolves live in the polar regions.



Animals of the polar region

Adaptations of plants and animals to the cold are

- Plants are small, dark in color, with small waxy leaves.



Plants with small dark with waxy leaves

- Trees have needle like leaves, with waxy coatings on them.
- Trees have branches that drop downwards so they do not break with the weight of the snow.



Trees with branches that drop downward



Needle leaves with waxy coating

Adaption of animals to the cold places

Animals have



- a thick fur coat on the body
- a layer of fat under the skin.
- fat round body shape with short legs.
- large ears to protect from cold wind.



- When it gets cold some birds fly to places where it is warmer. They do so to find food and shelter.



Birds migrating from cold to warm places

- Many animals sleep in dens during the winter. They eat the food they have stored there.



Animals in their dens during winter

ACTIVITY

A. Look at picture 1.



Picture 1

1. What is on the ground?

   ____

2. What kind of clothes is the man wearing?

   ____

3. If you had a chance to go to live there, what changes would you make to live there?____________

   ____

B. Look at picture 2.

1. What is the name of this animal?

   ____



Picture 2

2. What is its body covered with?

   ____

3. Why is its body covered with this?

   ____

Chapter 7 The plants and animals that live in a water habitat

A variety of animals and plants live in water. Some plants and animals like to live in fresh water and some plants and animals like to live in salt water.

ACTIVITY

1. Look at the pictures of animals and plants that live in water. Write their names and their habitats in the given blank spaces. Use the word box to help you with their names.

Fish	Whale	Shark	Lotus	Turtles	Frog



1. _______________
2. _______________



1. _______________
2. _______________



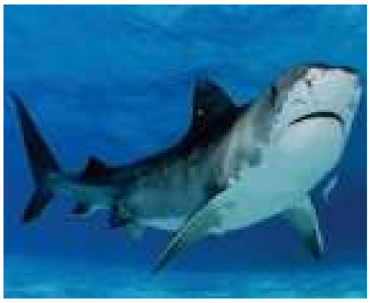
1. _______________
2. _______________



1. _______________
2. _______________



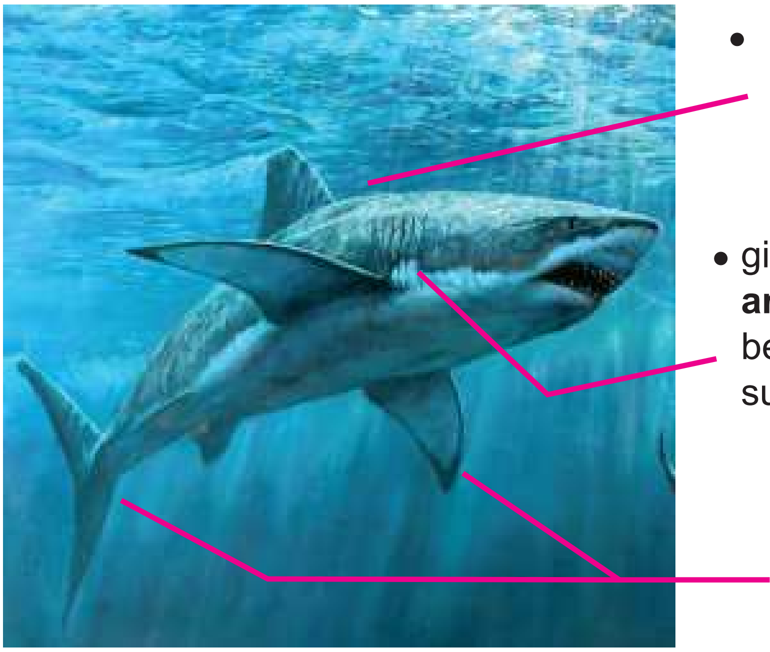
1. _______________
2. _______________



1. _______________
2. _______________

Adaptions of animals and plants to water

If you look at fishes, you will see that they have a number of special adaptations that allow them to live in water. They have



- **streamlined shape** to reduce friction when moving through water
- gills with a **large surface area** so that oxygen can be extracted from the surrounding water
- **fins** that provide stability, power and control

- Water birds have special adaptations help them live in water.
- They have webbed feet for swimming and their wings act as flippers.



The duck with webbed feet



Webbed feet

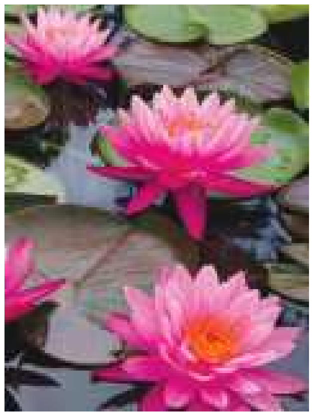


The wings acting as flippers

Plants that live in water also have adaptations

- They do not need as many roots as other plants because they live in the water.
- Their leaves float on water so as to get sunlight.


The Lotus


The water lily

ACTIVITY

Guess the name of the animal

1. I have a shell that protects my body.

   I use my flippers to push myself through the water.

   I live in the ocean, but I crawl up onto land to lay my eggs in the sand.

   Can you guess what my name might be? ____________________

2. I have big jaws full of sharp, pointy teeth.

   People are afraid of me. They think I will bite them.

   But I only bite people by accident.

   Can you guess what my name might be? ____________________

ACTIVITY



1. Look at the picture. What type of water habitat is this?

   ____

2. Why is the person in this picture wearing special clothes to go deep down in the water?

   ____

   ____

3. The person has an oxygen cylinder on his back and mask on his face. why?

   ____

   ____

4. Would the person be able to breathe in the water without the oxygen cylinder and mask?

   ____

   ____

Chapter 8

HOW HUMAN BEINGS AFFECT the NATURAL HABITATS

You have learnt that there are different kinds of land habitats such as deserts, forests and water habitats such as fresh water and salt water on our planet earth. In each habitat many different types of plants and animals live.

Many natural habitats are changed by us, human beings to live and grow. Sometimes, the changes made in a habitat disturbs the plants and animals that live there and sometimes it destroys the habitat completely.

When a habitat changes, some plants and animals may not be able to get the things they need to live. They have to struggle to survive. Look at the table below to see how the plants and animal struggle for and against to survive.

Animals struggle	Plants struggle
For food	For water
For water	For light
For protection from the weather	For minerals from the soil
Against being eaten	Against weather
Against weather	Against disease
Against accidents	Against being eaten

Table 1 How animals and plants struggle to survive

Human activities change land habitats

In the picture below you can see a forest in which trees have been cut down to make place for people to live.



A forest in which people have cut down trees to build houses

ACTIVITY

Close your eyes and imagine you are visiting a forest. There are many beautiful animals and plants. There are many birds in their nests with their baby birds. When you move ahead you see a tiger looking at you and you get afraid. You quickly turn around and see monkeys are hanging on the branches of trees and jumping from one tree to other. You see a baby monkey on the back of its mother.



A tiger in the forest



The monkey jumping from one tree to another

After a month you visit the forest again. You find nothing there except the remains of cut trees. You become sad and come home wondering why someone destroyed the forest.



A forest that has been cut down

Now open your eyes and answer the questions below

(i) Why did you return happy in your first trip to the forest? ____________________

(ii) Why did you become sad when you visited the forest the second time? ____________________

(iii) Who cut the trees in the forest? ____________________

(iv) Why did they do so? ____________________

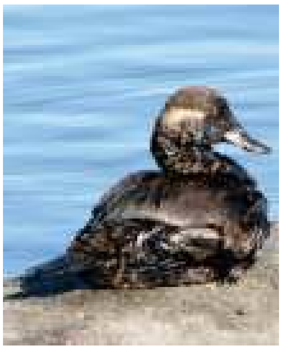
(v) What could be done to protect forests? ____________________

(vi) Is it true that deforestation destroys the habitat of many plants and animals? ____________________

Human activities that affect water habitats

- People throw garbage in the water.
- Chemicals from factories are thrown in the water.
- People dispose of sewage in the water.
- Oil spills causes damage to the water habitat.


Garbage thrown in the river


A duck covered with oil


Dead fish due to water pollution

Ways to save natural habitats

We need to take action to save our natural habitats both land and water.


The residents of Karachi voluntary cleaning the beach

- We should clean our water habitat.
- Plant more trees in your school and home. Take care of them, they will keep your environment fresh and clean.


Children planting trees

ACTIVITY .3

Make a poster showing ways to save the environment (land and water) and display them in your class.

END OF UNIT EXERCISE

A. Fill in the blanks

(i) A natural source of light is the __________.

(ii) There would be no life on earth without the __________.

(iii) The energy from the sun is called __________.

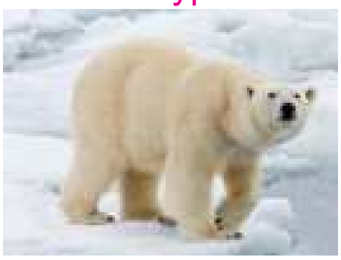
(iv) Plants use solar energy to produce __________.

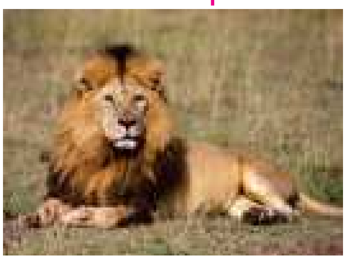
(v) Human beings eat __________ and __________for food.

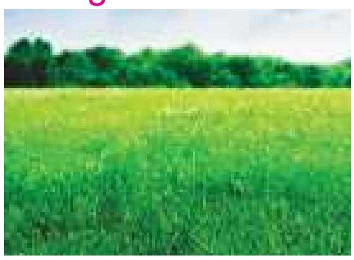
B. In the first column of the table the features of animals are given. Complete the remaining columns for each feature.

Features	Name an animal which has this feature	What type of habitat does this animal live in?	How does this feature help the animal to survive in that habitat?
Long eye lashes			
Fatty tail			
Big ears			
Furry coat			
Thick feathers			
Streamed line body			

C. Write the type of habitat for each picture in the given blanks.







__________ __________ __________







__________ __________ __________

D. In column a some words are given. In column b meanings of these words are given. Match the words in column a to the best answer in column b.

Column A	Column B
Camouflage	The land covered with lot of trees.
Forest	Hot, dry habitat.
Desert	An animal with a heavy body and furry coat.
Polar bear	A habitat with a lot of trees where it rains almost everyday.
Rain forest	A tree with Needle shaped leaves and hard cones.
Polar region	An adaptation of animal to blend it with the environment.
Pine tree	An extremely cold place with the animals and plants.

E. The rainforest is home to the largest number of animals and yet the rainforest is in danger because so many rainforest trees and other plants are needed to make many of the products we use. List three ideas that can help to save the rainforest?

1. ____

2 ____

3. ____

F. Inquiry and presentation

Divide the class into groups of 4. Tell students that they are going to conduct an inquiry about different habitats of the world. Give each group one habitat from the box to work on. Each group will make a presentation to the class on its habitat including the following information.

1. Desert habitat	4. Freshwater habitat
2. Saltwater habitat	5. Grassland habitat
3. Forest habitat	6. Polar region habitat

1. A physical description of the habitat

   ____

2. Examples of where this kind of habitat is found around the country.

   ____

3. Examples of three animals and three plants that live in that habitat.

   ____

4. A few adaptations in the animals and plants that help them live and grow in that habitat.

   ____

When students have completed their inquiry, have each group present its work to the class.

Teacher's note Encourage students to use the knowledge they have got through reading the different kinds of habitats in the book and to seek the help of adults. Each student in the group could be given one question to work on so that all may participate and contribute to the collection of data.

Unit 2. CHANGES IN LIVING THINGS

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Am I look like my parents?

- Compare young plants and animals with their parents (through pictures, through observations etc).

Chapter 2 Life cycle of a plant

- Identify the changes that animals and plants under go during their life (hen, frog, butterfly, cat, sunflower, rose).
- Interpret diagrams of the life cycles of animals and plants to identify the different stages.

Chapter 3 Life cycle of a bird

- Sequence the stages of the life cycle of plant/animals.

Chapter 4 Life cycle of an insect

- Illustrate the life cycle of an animal and a plant.

Chapter 1

Am I look like my parents?

Some young plants and animals look like their parents. Look at the pictures below. Does the kitten look like its parent, the cat? Does the baby rose plant look like its parent?





Baby rose plant look like its parent



Kitten look like its parent

ACTIVITY

1. Write the names of three (3) animals and three (3) plants that look like their parents when they are young.

Animals: i. ____________________

ii. ____________________

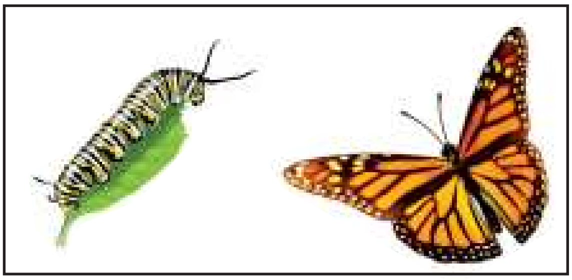
iii. ____________________

Plants: i. ____________________

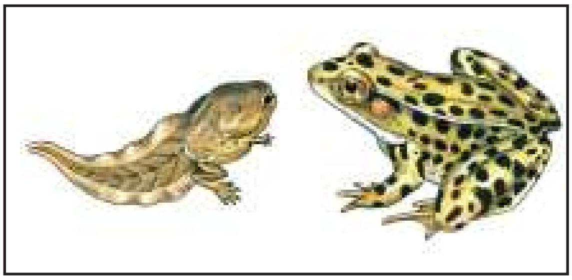
ii. ____________________

iii. ____________________

Some young plants and animals do not look like their parents. Look at the pictures below. Does the caterpillar look like the butterfly? Does the tadpole look like the frog?



Caterpilar and butterfly



Tadpole and frog

ACTIVITY

List three (3) differences between the caterpillar and the butterfly and three (3) differences between the tadpole and the frog.

i__________________ ii__________________ iii__________________

i__________________ ii__________________ iii__________________

We have observed that many young plants and animals look like their parents. They share many characteristics with their parents. Even those that look different from their parents when young, grow up to look like their parents.

ACTIVITY

Fill in the table to find out how much you are like your parents.

Physical Characteristics	Me	My Mother	My Father
Height			
Colour of hair			
Right handed / left handed			
Colour of eyes			

Chapter 2

Life cycle of plant

Plants and animals go through different stages as they grow to become adults. This is called a life cycle.



Life cycle of a flowering plant

- The seed need food, so it is put into the ground.



- The seed needs water, so it is given it water. The seed needs sunlight, so it is put in the sun.



- Then, the seed starts to sprout. Roots begin to form in the ground. The stem and leaves come out from the soil.



- The seed is now a plant.
  The plant grows tall, more leaves grow on it and buds appear.
- Then the buds open into flowers.



- The flowers grows into fruit with seeds
- Then, the wind blows and tiny little seeds fall to the ground.



- After the seeds fall to the ground, the life cycle of a plant starts all over again.

ACTIVITY

Write the stage number on the arrow of life cycle of a bean plant?

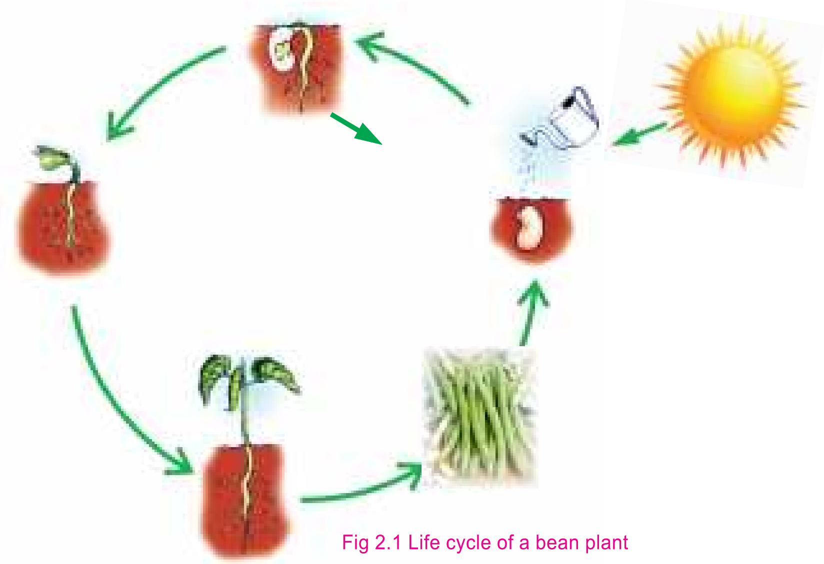


Fig 2.1 Life cycle of a bean plant

As all flowering plants go through this cycle. We can make a general life cycle of a flowering plant (see fig 2.2).

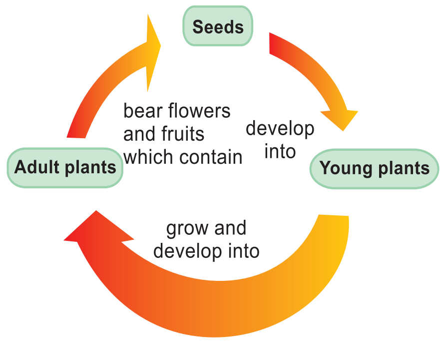


Fig 2.2 Life cycle of a flowering plant

ACTIVITY

Draw life cycles of the rose and sunflower plants by using the general life cycle diagram given above.

Chapter 3

Life cycle of a bird

All birds come from eggs. They have special life cycles. We are going to study the life cycle of a bird.

Life cycle of a chicken

Look at this fig 3.1. It shows the life cycle of a chicken.

- The life cycle of a chicken begins with an egg. When an egg is laid, a chick starts to grow inside.
- The hen sits on top of the eggs to keep them warm. The yolk inside the egg has food that helps the chick to grow.



Fig 3.1 Life cycle of chicken

- When a chick is strong enough, it hatches from its egg. It uses a small lump (egg tooth) on its beak to make holes around the shell.
- When the chick grows it may become a female chicken, called a hen or a male chicken, called a rooster.

All birds go through this cycle. We can make a general life cycle of all birds (see fig 3.2).

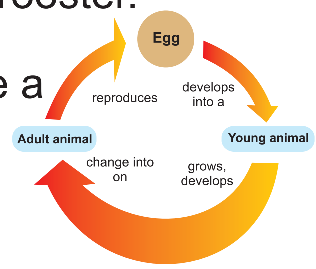


Fig 3.2 General diagram of the life cycle of a bird

ACTIVITY

Use the general diagram above to draw the life cycle of a duck.

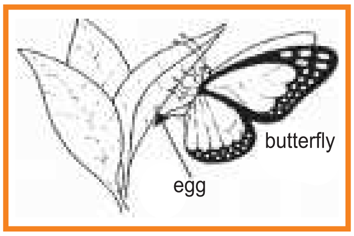
Chapter 4

Life cycle of a insect

All insects come from eggs. Insects have special life cycles. We are going to study the life cycle of an insect.

Life cycle of a butterfly

- The egg is a first stage of a butterfly's life cycle. Adult butterflies lay their eggs on plants.

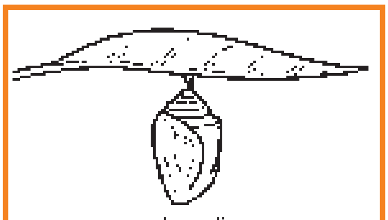


Stage 1

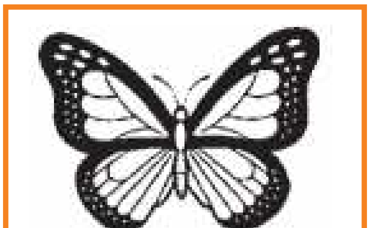
- A caterpillar is the second stage of a butterfly's life cycle. It hatches from a butterfly egg. When the caterpillar hatches, it eats the leaves of the plant. It keeps growing big and fat.


A caterpillar eats a lot of food
Stage 2

- A chrysalis is the third stage of a butterfly's life cycle.
- A chrysalis has hard shell on the outside. Inside, the caterpillar's body becomes liquid. It begins to change into a butterfly. Every butterfly forms inside a chrysalis. Some form in a few days and some take a few months.


chrysalis
Stage 3

- A new butterfly comes into the world.

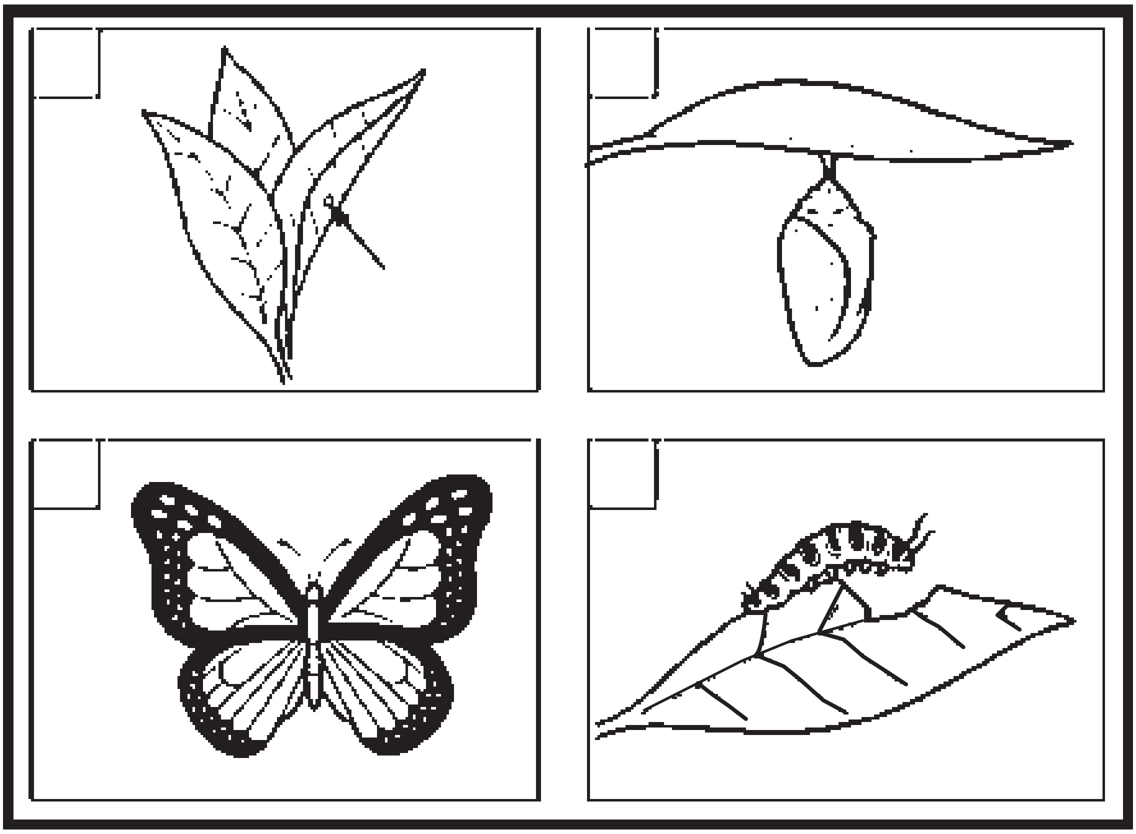

a butterfly
Final stage

ACTIVITY

A. Fill in the blanks.

1. A butterfly is a type of________.
2. The first stage of a butterfly's life cycle is the ________.
3. The Caterpillar is the ________stage in the life cycle of a butterfly.
4. The Caterpillar comes out of an ________.
5. A ________will eat until it grows big and fat.
6. A caterpiller eats ________ .
7. A Caterpillar becomes a chrysalis in the ________ state.
8. Butterflies come into the world from a ________ .

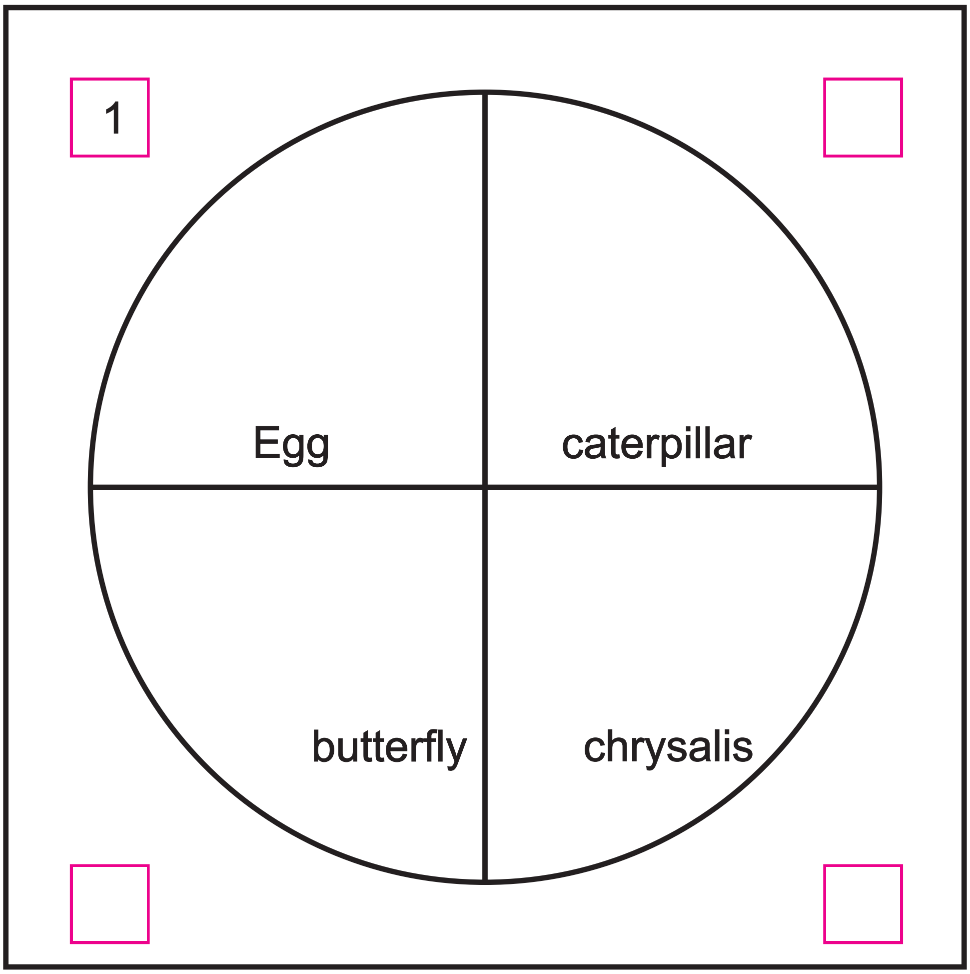
B. Number the stages of the butterfly's life cycle in the correct order.



END OF UNIT EXERCISE

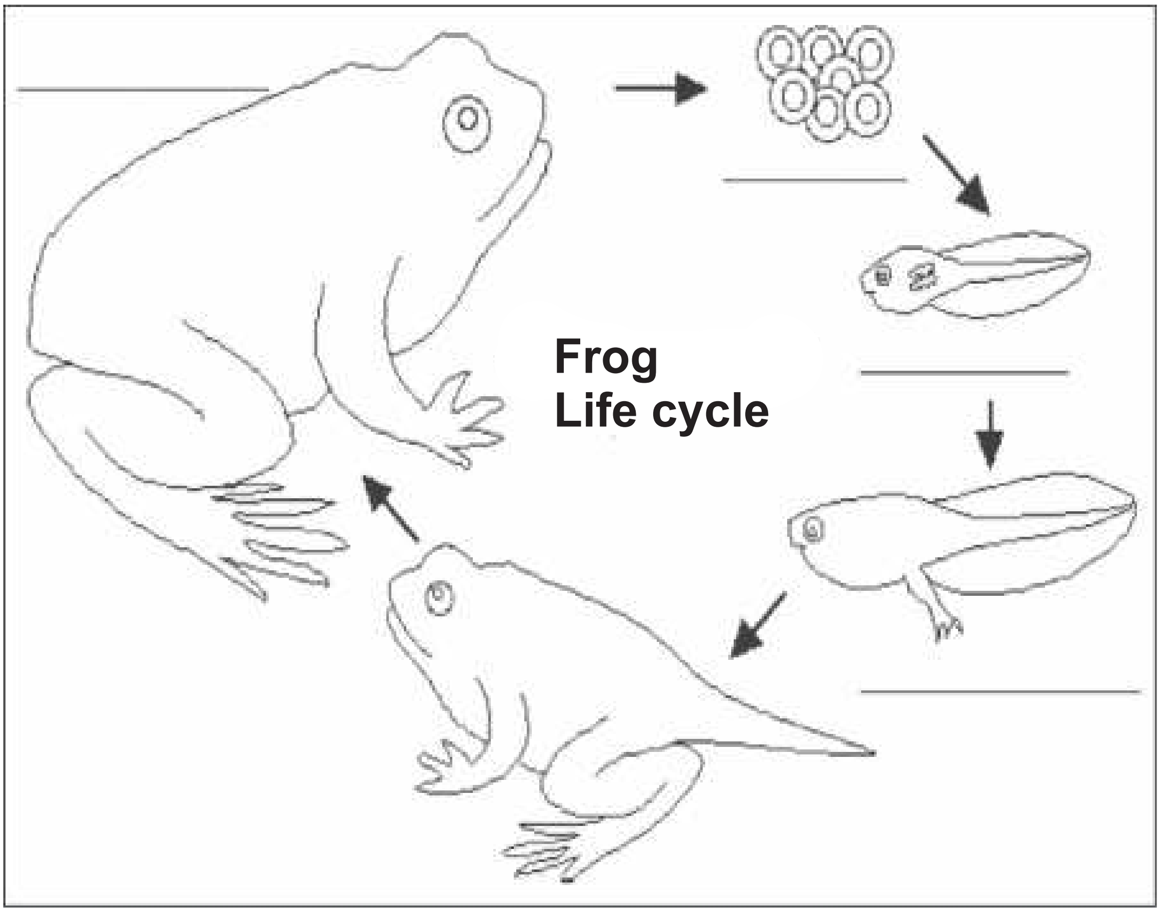
A. Draw and label the stages in the life cycle of a bean plant.

B. Draw each stage of the life cycle of a butterfly in the space provided. Number each stage. The first one in done for you.



C. Read the text, label the stages in the life cycle of a frog and then colour it.

In the first stage, a female frog lays many, many eggs in the water. In the second stage the eggs hatch into tadpoles. The tadpole spends its time swimming in the water, eating and growing. Tadpoles breathe using gills and have a tail. The tadpole then grows legs and arms, it body grows longer and its head becomes more distinct. In the next stage, the froglet, an almost mature frog, breathes with lungs and still has some of its tail. Finally, the adult frog, breathes with lungs and looses its tail (it is absorbed by the body).



D. Fill in the blanks.

Young Animals

- Who look like their parents
  - For Example:-
    1 ____________
    2 ____________
    3 ____________
- Who do not look like their parents
  - For Example:-
    1 ____________
    2 ____________
    3 ____________

E. Look at the life cycle and name two animals who have this cycle.

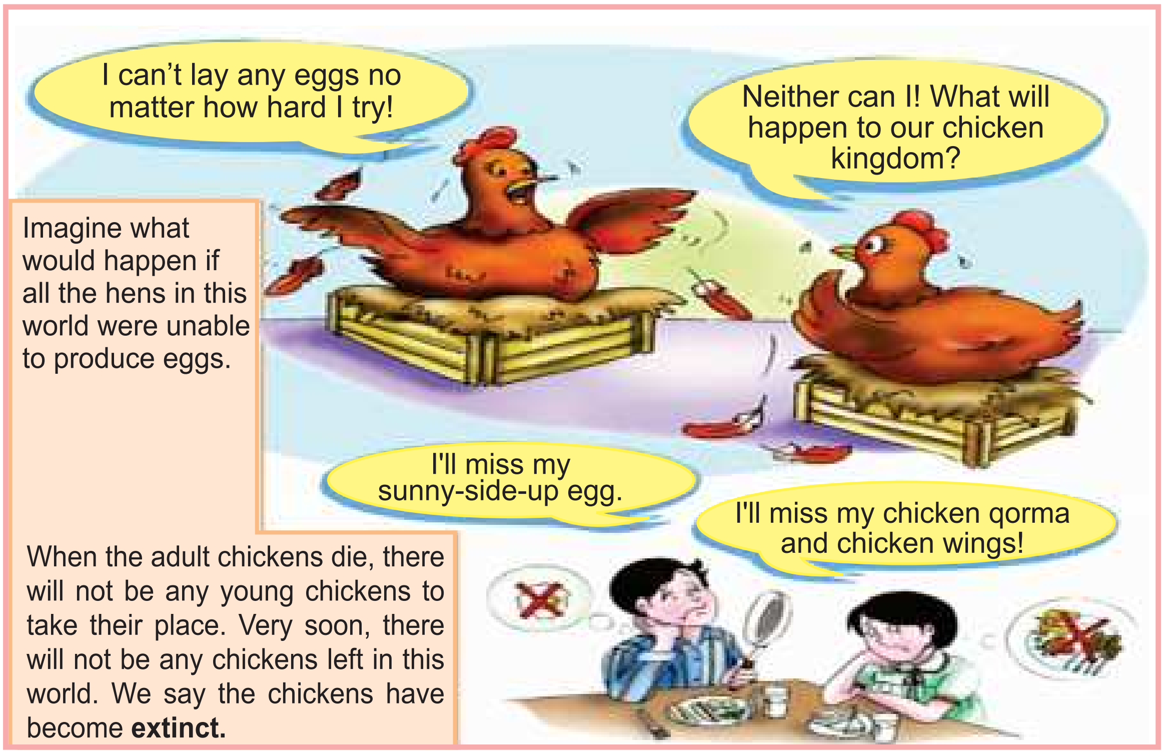
Egg → Young → Adult

1. ________________________________

2. ________________________________

F. Inquiry

If plant and animals will not reproduce what will happen? Read the text of what will happen without chickens.



a) Write what will happen if cows do not reproduce?

____

____

____

b) What will happen if the mango plant does not reproduce?

____

____

____

Teacher's note Ask the students to read the text in the box. Discuss with them what would happen if there were no chickens left. Now ask them to think of what would happen if cows and mango plants did not reproduce.

Unit 3. HEALTHY LIVING

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 What we must do to live healthy?

- Recognize that healthy living requires eating a balanced diet, keeping clean, getting a good night sleep and exercising regularly.
- Classify foods into the basic food groups.

Chapter 2 Eating balanced meals

- Define a balanced diet.
- Identify foods for the three meals of a day to prepare a balanced diet.
- Prepare a leaflet to educate others of the importance of cleanliness for healthy living.
- Recognize the importance of appropriate rest and a good night's sleep for healthy living.
- Identify the ways to get sufficient exercise to stay healthy.

Chapter 1

What we must do to live healthy?

Living a healthy life is important as it makes us fit for work and play. Being fit means our body works well, we feel good, and we can do all the things we want to do.

To live a healthy life we must do the following:

- Eat many different foods to have the energy to do the things we want.
- Keep clean by taking a bath everyday.
- Brush your teeth twice a day: before going to bed and after breakfast in the morning.
- Wash your hands before and after meals, after you go to the toilet and when you come in from playing.
- Wear a clean set of clothes everyday.
- Drink plenty of water and a glass of milk each day.
- Stay active. Make sure you play games everyday to get the exercise you need. Do not spend too much time watching television (TV).
- Get a good night's sleep.

Eat different foods

You may have a favorite food and it is alright to eat it now and again. But, if you want to stay healthy, it is best to eat a variety of foods. If you eat different foods, you are more likely to get the nutrients your body needs to stay healthy (see the section on balanced meals).



When you are eating, notice how your body feels and stop eating when your stomach feels comfortably full. Eating too much can make you feel uncomfortable and can lead to unhealthy weight gain.

Drink Water and Milk

When you are really thirsty, drink water, it is the best drink to satisfy your thirst. You also need to drink milk everyday, as milk is a great source of calcium, and you need calcium to build strong bones.

You probably will want something other than milk or water once in a while; you can have 100% juice. But try to limit sugary drinks as they contain a lot of sugar. Sugar just adds calories, not important nutrients.





Children drinking milk and water

Keep Clean

It is important to keep clean to be healthy. Take a bath everyday and put on clean clothes after a bath. Wash your hands before and after meals. Also wash your hands with soap after going to the toilet and when you come in from playing.



A child wash their hands

It is also important to brush your teeth everyday, at least twice a day, once at night and once before breakfast.



A girl brushing teeth

Be active



Make sure you spend some time playing each day. You can play with your friends, ride a bike, go swimming, or ask for exercise. These days there is TV, video games and the computer and you may spend a lot of time on these sitting-down activities. Try to spend no more than two hours a day on these activities, not counting computer use related to school.

Get a good night's sleep



You need a good night's sleep everyday. You need to sleep for six to eight hours every night. A good sleep at night allows you to stay active and learn well the next day.

You need your parents to help you live healthy. They can buy and cook a variety of different foods and play activities that keep the whole family active. Go home and tell your family what you learnt today and together plan how to keep healthy.

Chapter 2

Eating balanced meals

We all need to eat and drink every day but why?

Why do we need food?



- We need food to grow.



- We need food to be active.



- We need food to stay healthy.

Food has three major components or building blocks .

- Proteins that help you grow.
- Carbohydrate that give you energy.
- Fat that stores energy.

All building blocks do different things. Foods can be mostly one type of building block, or they can have all the different building blocks. You need to eat lots of different foods to make sure you get all the building blocks.

The different food groups are:

1. **Protein group**



Meat, poultry, eggs, beans, seeds and nuts are some foods that make up the protein group.

2. **Carbohydrate or grain group**



Grains such as wheat, rice, and barley and potatoes are some foods that make up the carbohydrates.

3. **Vegetable and fruit or vitamins group**



Vegetable such as carrots, peas, and tomatoes and fruits such as banana, mangoes and apples make up this group.

4. **Milk and dairy food**



Milk and milk product such as cheese, *lassi* and yogurt make up this group

5. **Fats and sugar group**

Fats such as butter, ghee and sweets such as *gulab-jamun* and *ras-malai* belong to this food group.

ACTIVITIES

A. Divide the class into 5 groups: fruit group, protein group, grain group, vegetable and fruit group, milk group and fats group. Show the pictures of different food one by one to the class ask them for the name of the food and its group. Fill in the given table.

potato, butter, carrot, banana, rice, milk, grapes, wheat,
eggs fish, barley, meat, lassi, cheese, ghee gulab jamun.

Protein	Carbohydrate	Vitamins	Milk and dairy	Fat and sugar

B. Answer the following questions.

1. What foods do you like?

   ____

2. What foods do you dislike?

   ____

3. What meals do we usually eat during the day?

   ____

4. At what times are these meals eaten?

   ____

5. How do you feel when it is nearly lunch time or other times

   ____

6. When you need some food?

   ____

A balanced diet



If you do not eat a balanced diet, you will not have the strength to study and play. You will not have all the right / building blocks. To make sure we get all the building blocks we must eat a balance diet.

What do you think a balanced diet is?

For a balanced diet our plate should have the following.

- 1/3 filled with the fruit and vegetable group.
- 1/3 filled with the grain group.
- Rest of the 1/3 filled with protein, fats and milk product

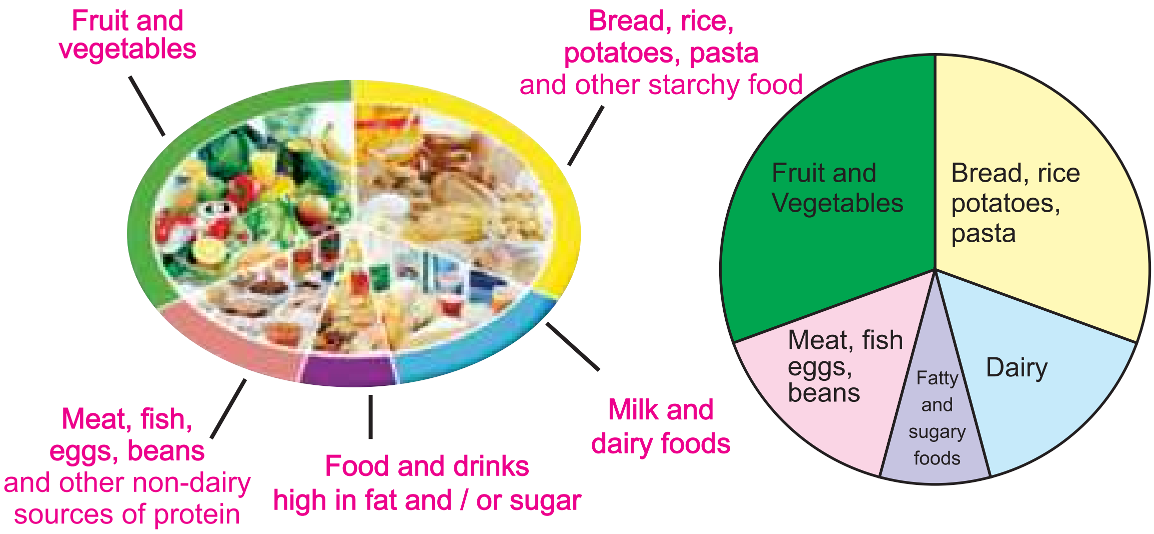


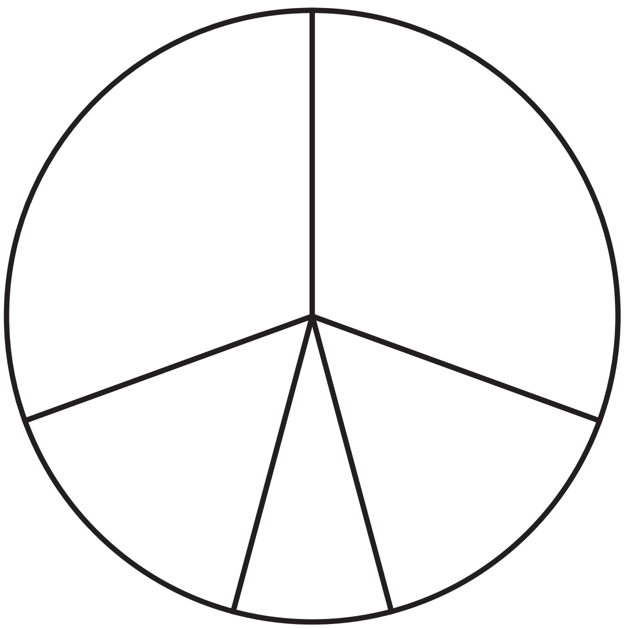
Fig 2.1 The eat well plate

The eat well plate shows the different types of food that make up our diet and the proportions we should eat them in to have a well balanced and healthy diet.

END OF UNIT EXERCISE

A. Draw a picture of the food you ate yesterday.

B. Plan a balanced meal for tonight. Can you make your eat well plate for tonight’s meal? Don't forget your drink.



C. Answer the following statements

1. Name three things you must do to stay healthy?

   (ii) ____________ (ii) ____________ (iii) ____________

2. Name three foods from the protein group?

   (ii) ____________ (ii) ____________ (iii) ____________

3. Name three fruits and vegetables that you eat?

   (ii) ____________ (ii) ____________ (iii) ____________

D. Answer the following questions

(i) What must we do to say healthy?

____

____

(ii) Name the food groups.

____

(iii) How much each food group is required for a balanced diet?

____

E. Prepare a flyer to teach others the importance of healthy living. Put two points for each of the following: eat different foods, drink water and milk, keep clean, be active, sleep well.

F. Find out the different food available near your home, list at three in the each of the columns below.

Sr. No.	Protein	Carbohydrate	Vitamins	Milk and dairy	Fat and sugar
1.					
2.					
3.					

Teacher's note Explain to the students how to make a lemon water drink.

Unit 4. ANIMAL FOODS

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 What animals eat?

- Recognize different animals have different diets.

Chapter 2 The teeth of animals

- Identify how the shapes of teeth help animals to eat their particular foods.

Chapter 1

What Animals eat

ACTIVITIES

1. Name three things you like to eat.

   (i) ______________________________

   (ii) ______________________________

   (iii) ______________________________

2. What do you think a cow likes to eat and why?

   ____






3. Ask the questions to the class and write their answers on the board.

- Why do you eat?
- Why do you think animals need to eat?
- What kinds of foods do you eat?
- What kinds of things do animals eat?
- How do you get food?
- How do you think animals get their food?
- How could you find out what your animal eats?

Animals need food to grow big and healthy.
Some animals are plant eaters or herbivores.



Plant eating animals (herbivores)

Some animals are flesh eaters or carnivores.



Flesh eating animals (carnivores)

Some animals eat both plants and animals. They are omnivores. Human beings are also omnivores.



Plant and flesh eating animals (omnivores)

4. Fill in the table below and color the animals.



Animal name	What they like to eat	What they are (Herbivores, Carnivores, Omnivores)

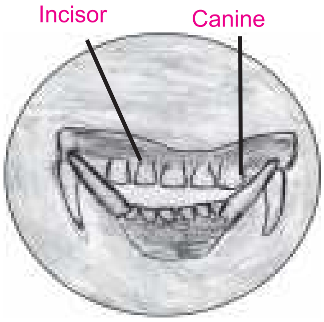
Chapter 2

The teeth of animals

Animals have different types of teeth. The kind of teeth they have depend on the type of food they eat. Carnivores and herbivores have different types of teeth.

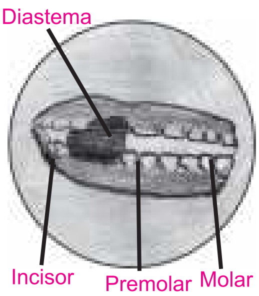
Carnivores usually have sharp teeth and strong jaws, which they need to successfully catch and eat their prey.





Herbivores have flat teeth to chew and grind the food.





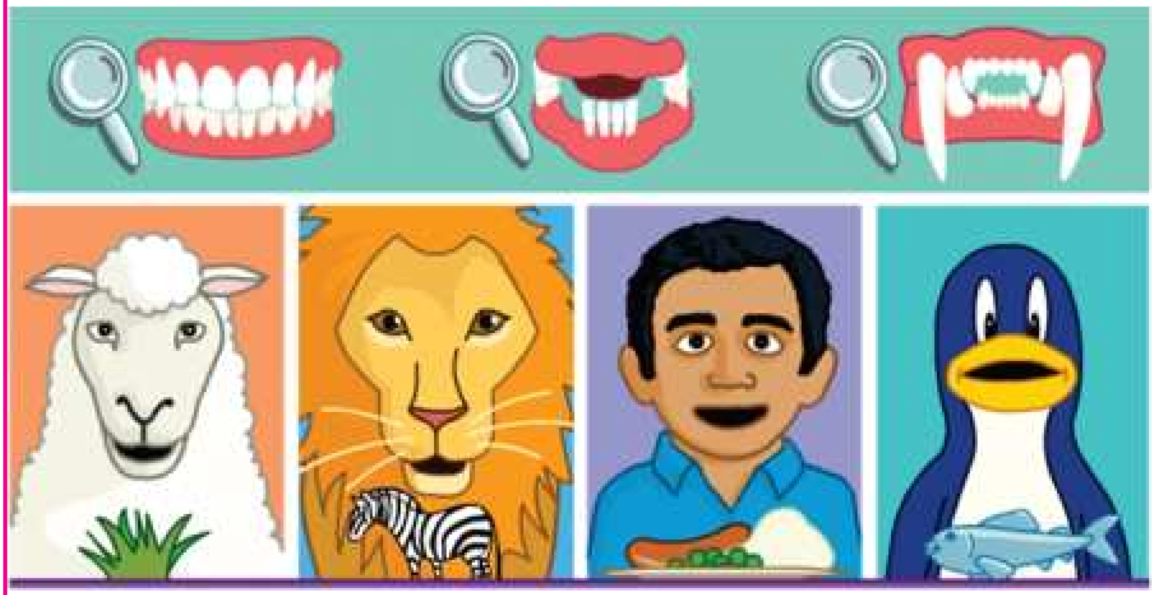
Humans are omnivores and thus they eat both plants and animals.

Some animals like snake and frogs have no teeth. They swallow their food.

> *Do you know!*
> Our teeth will change with age. So, the teeth you have when you are a baby are not the same as fut in the colour the one's you will have as an adult.

ACTIVITIES

1. Food is provided to all these animals but they lost their teeth. Match the missing teeth to the correct animal so that they can enjoy their food. (The teeth can be used more than once).



2. Circle the correct option.

   1. Do all animals have teeth?
      - ○ No, some animals such as birds don't have teeth
      - ○ Yes, all animals have teeth
      - ○ No, some animals such as cats and mice don't have teeth

   2. Why do we have teeth?
      - ○ To look good when we smile
      - ○ To protect our mouths
      - ○ To cut, tear and crush our food before we swallow it

   3. Humans are omnivores. What type of food should we eat to keep healthy?
      - ○ Meat and vegetables
      - ○ Only meat
      - ○ Only vegetables

4. A lion is a carnivore. What type of food do carnivores eat?
   - ○ Only meat
   - ○ Only plants
   - ○ Both meat and plants
5. A sheep is a herbivore. What type of food do herbivores eat?
   - ○ Only meat
   - ○ Only plants
   - ○ Both meat and plants
6. Which teeth are used for crushing and grinding food?
   - ○ Incisors
   - ○ Molars
   - ○ Canines
7. Which teeth are used to rip and tear food?
   - ○ Incisors
   - ○ Molars
   - ○ Canines
8. What is the job of incisor teeth?
   - ○ Snipping and cutting off pieces of food
   - ○ Ripping and tearing food
   - ○ Crushing and chewing food

END OF UNIT EXERCISE

A. Draw a dog and the kind of teeth it has.

B. Fill in the blanks with the words given in the box. The words can be used more than once.

meat	plants	meat and plants

1. A lion eats ________________
2. A cow eats ________________
3. An elephant eats ____________
4. A shark eats _______________
5. You eat ___________________
6. A donkey eats _________________

Teacher's note Encourage the students to give the as possible answers. Let them think, speak and share their observations rather than giving them information.

C. Answer the following statements

1. Name three animals that eat meat.

   (i) ______________ (ii) ______________ (iii) ______________

2. Name three animals that eat plants.

   (i) ______________ (ii) ______________ (iii) ______________

3. Name three animals that eat meat and plants.

   (i) ______________ (ii) ______________ (iii) ______________

D. Fill in the table

Name of animal	kind of food they eat	kind of teeth they have
Lions		
Penguins		
Human beings		
Rabbits		
Crows		

E. Inquiry

Find out above the animals that live around you. For each write its name, the food it eats and the kind of teeth it has.

1. Name of animal ______________________________
   food it eats ______________________________
   teeth it has ______________________________

2. Name of animal ______________________________
   food it eats ______________________________
   teeth it has ______________________________

3. Name of animal ______________________________
   food it eats ______________________________
   teeth it has ______________________________

Unit 5. OUR RESOURCES

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Resources

- Define the terms natural resources, human resources and capital resources.
- Identify natural resources (plants, animals, water, air, land, forests and soil), human resources (farmers, builders, painters, etc.), capital resources (trucks, computers, factory buildings, etc.)

Chapter 2 Goods and Services

- Define the terms: goods, services, buyers and sellers.
- Identify how a good or service is made available.
- Identify the main goods and services of their local area.
- Recognize the concept of specialization (being an expert in one job or service or product).
- Recognize the need for interdependence as not all goods and services are available in their area.

Chapter 3 Scarcity

- Define scarcity.
- Recognize that people make economic choices because goods and services are limited.

Chapter 1

Resources

A' resource' is something that someone has, and can use when it is needed. Resources could be natural, human or capital.

Natural Resources

In class two you have learnt about natural resources. Can you say in your own words what are natural resources? Can you give some examples of natural resources? Yes, the things that nature provides and which we use are called natural resources. Yes, the air we breathe, the water we drink, the animals we eat for food and transportation and the land and the plants that grow on it are all natural resources.



Water, plants and mountains



Land



Crops

Natural resources

Human Resources

Human beings do different types of work to produce goods and provide services. Carpenters make tables and chairs and bakers bake bread and biscuits. Tables and chairs and bread and biscuits are goods produced by human beings. Teachers teach children in schools and police take care of your safety. Teaching and taking care of your safety are

services. human beings working to produce goods and services for us are human resources.


Traffic police


Teacher teaching students


Tandoor wala making nans


Carpenter making stools

Human resources

Capital Resources

Human-made things like tools, machines, computers and factory and office buildings which are used to produce other goods and services are known as capital resources. For example, a farmer (human resource) uses a tractor (capital resource) to plough the land (natural and capital resource) to grow food (a good). Tailors (human resource) use sewing machines (capital resource) to make clothes (service).


Tailors using machines


Farmer using tractor in a field

Capital resources

ACTIVITIES

A. Look at the pictures of different resources given below. (i) Write the name of each resource. (ii). The kind of resource (natural, human, capital). (Use the word box to help you).

soil forests factory tailor tractor computer



i) ____________________

ii) ____________________



i) ____________________

ii) ____________________



i) ____________________

ii) ____________________



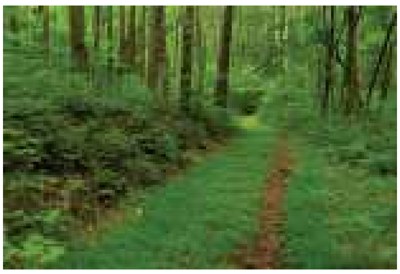
i) ____________________

ii) ____________________



i) ____________________

ii) ____________________



i) ____________________

ii) ____________________

B. (i) From the given box, sort out natural, human and capital resources and write them in the correct column. (ii) Write 2 more yourself under each column.

farmer	truck	painter	plants	rickshaw
computer	tractor	animals	builder	water

Natural Resources	Human Resources	Capital Resources

(ii) Draw pictures of any three resources.

Chapter 2

Goods and services

Goods

We all need many things for our use in our daily lives. People grow or make these things and then we buy them.

The things or objects which we can feel and touch are goods.

Can you feel and touch apples? Can you buy apples? The apples are goods. Can you feel and touch books? Can you buy books? Then, books are goods. Apples and books are examples of goods. Can you think of some more 'goods' which you buy for your use?



Clothes



Fruits



Books

The people who grow or make goods send them to shops and markets from where we buy them.

Teacher's note Explain to students the difference between goods and services. 'Goods' are products or commodities whereas 'Services' are the performance of any duty (or work) for another person. These are mostly professional activities. A 'service' is an 'action' that you pay for. Ask them about the goods they use in their daily life. Some examples of goods could be books, sweets, skipping rope, bat, ball, cap, pen, pencil. Examples of services providers could be plumbers, policemen, bankers, drivers, barbers, etc.

Services

We also buy things that cannot be felt and touched. For example, we buy haircuts when we go to the barber shop. Can you feel and touch a haircut? No. Therefore, a haircut is a service. We buy travel when we go on a bus to go from one place to another. Can you feel and touch your travelling? No. Therefore, travelling is a service. We buy repairs when something is broken. We pay a doctor to treat us when we are sick. We pay the tailor to stitch our clothes. All these are examples of us buying a service. A service is some work done for us.



Shopkeeper selling goods



Doctor looking after a patient

People in our community provide 'services' for us. Some examples are teachers, doctors, tailors and carpenters. Can you think of some more services and the people who provide them?

ACTIVITIES

A. List three goods in your classroom.

(i) ______________ (ii) ______________ (iii) ______________

B. (i) From the given box, sort out goods and services and write them in the correct column. (ii) Write three more under each column.

biscuit splate cooking food kite driving a rickshaw
book cutting hair fixing a leaky pipe bicycle painting a house

Column A Goods	Column B Services

C. Answer the following questions

1. What is a 'goods'?

____

2. Name two goods you use in your daily life.

____

3. What is a 'service'?

____

4. Name two services you use in your daily life.

____

Producers, buyers and sellers

When people buy goods and services to satisfy their needs and wants they are called 'buyers'.

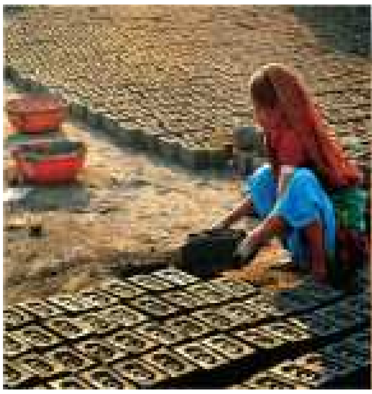
Some people use resources to grow or make the goods and services we want. They are ‘producers’.

Some people sell the goods and services to us. They are called ‘sellers’.

ACTIVITY

1. List the three products with the help of pictures.

Buyers	Producers	Sellers
1.	1.	1.
2.	2.	2.
3.	3.	3.



producers

buyer seller

Specialization and Interdependence

People are experts in different areas. They can make certain things or do certains work better than others. We can say that they 'specialize' in making a certain good or providing a certain service. For example, one person can cook well while another can make good shoes. Another person can make nice pottery while still another can grow good vegetables.



A person making *ajrak*



A person making pottery

Because there are so many skills and types of work, no one person is able to do everything. We cannot make everything we need ourselves. We all depend on each other for our needs. This is called 'interdependence'. For example, the books you read were written, printed, and sold by someone else. All you did was buy them. If you want to listen to the radio, watch TV, or read a book, you are dependent on someone else to make those things.

What about the clothes we wear? The cotton was grown by someone in a village, the cotton was made into cloth in a factory in the town and we purchased the cloth in a shop in the city. We are dependent for different things on other people and they are dependent on us for certain other things.







Cotton field —— Textile factory —— Cloth seller

ACTIVITY

Name three people in your neighbourhood and write down the different work they do, jobs they have or products they make. What is their specialization?

Work people do in your neighbourhood	Specialization
1.	
2.	
3.	

Chapter 3

Scarcity

Sometimes there is not enough of a resource or enough of goods or services available to meet the needs of everyone. When there is not enough of a resource or a good or service available for all those who want to buy it, we say that it is scarce or there is a scarcity of it. Scarcity means shortage or limited supply of something. For example, everyone wants sugar to put in their tea. But sometimes it is not available in the market. This means that there is a scarcity of sugar. In the same way, on Eid day everyone wants to go to visit their relatives but there are not enough rickshaws. This means there is a scarcity of transportation.



People waiting for a rickshaw

Teacher's note Explain to students that most people do not have enough money to buy and do everything they want. Say, "I do not have enough money, your parents do not, and even the President or Prime Minister of a country does not have enough money to do and buy everything he/she wants for the country. That is why it is important to decide/ choose what you need the most."

When resources are limited, people cannot have all the goods and services they want. So it is necessary for people have to make a choice. They have to choose some other good or service. Let us take the same examples above. If there is a scarcity of sugar, we may buy ghur to put in our tea or we may take our tea without any sugar. In the same way if there are not enough rickshaws we may choose to pay more and take a taxi or choose to get on a bus.



Women choosing shoes at shoe shop

Deciding or choosing between two or more different objects or actions (among goods, services, or resources) is called an economic choice.

Making choices is based on how much money we have, the cost of the good or service and how much we need it. People should think about their purchases more carefully, and buy only what they really need.

ACTIVITIES

A. (I) Count the money given in each box on the left hand side and write the amount on the given line. (ii) Now look at the pictures of things and the price at which they are being sold in the each box. You can only buy items that can be paid for with the money in the first box. Draw a circle around the item you choose to buy.



______



Rs. 400/-



Rs. 150/-



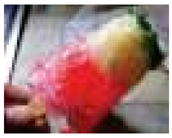
Rs. 60/-



______



Rs. 20/-



Rs. 30/-



Rs. 25/-



______



Rs. 50/-



Rs. 300/-



Rs. 75/-

B. Answer the following questions

1. Define Scarcity.

____

2. What happens when resources are limited?

____

3. What is economic choice based on?

____

4. What type of work does your father do?

____

5. What type of work does your mother do?

____

6. Do they have any special skills or did they have specialized training to do that work?

____

7. How do people depend on their work to meet their needs and wants?

____

8. How do your parents depend on other people for their needs and wants?

____

END OF UNIT EXERCISE

A. Draw pictures of two resources each (natural, human or capital) and colour them.

B. Draw lines to match the different people to their specialized jobs. The first one has been done for you. (please put the different people in alphabetical order)

1. Weaver	mends everyone's shoes
2. Police officer	makes things with iron
3. Cobbler	grows grains, fruits and vegetables.
4. Farmer	weaves good quality cloth.
5. Ironsmith	keeps neighbourhood safe
6. Teacher	can stitch clothes for people.
7. Doctor	makes nice clay pots for everyone.
8. Tailor	transports people and goods to a place
9. Potter	makes sure people are healthy.
10. Bus driver	helps children learn.

C. Answer the following questions

1. What is a 'Natural Resource'?

   ____

2. Name three natural resources you use in your daily life.

   ____

3. What is a 'Human Resource'?

   ____

4. Give three examples of human resource.

   ____

5. What is a 'Capital Resource'?

   ____

6. Give three examples of capital resources.

   ____

7. Define 'buyers'.

   ____

8. Define 'sellers'.

   ____

9. Define the term 'scarcity'.

   ____

10. What choices would you make if there was a scarcity of flour?

    ____

D Suppose you are opening a business that sells lemon juice

1. What resources (natural, human and capital) will you need to produce your good (lemon juice)?

____

____

2. What kinds of services will you need to help make and sell your good?

____

____

Teacher's note Explain to the students that they are opening a business that sells lemon sharbat. This means they will be making a higher volume (more quantity) of lemon sharbat and selling it from their place of business. They will have to consider the number of and what kinds of services they will need to help make and sell their good. They also have to consider what natural (what natural resources will be needed to produce goods), human (what types of people will they need to have their business run smoothly), and capital resources (what tools and equipment will they need to produce their good) they will need to satisfy a large number of consumers.
For example they would need lemons, sugar, ice (natural resources), more people to help with the work such as buying, washing and squeezing lemons, mixing the sharbat, serving it and then cleaning up, etc. (human resource) and knives, bowls, jugs, glasses

Unit 6. SAVING OUR NATURAL RESOURCES

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Water

- Describe ways in which humans have changed the natural environment.

Chapter 2 Land

- Predict that what would happen if natural resources were used up.
- Suggest ways to save natural resources.

Chapter 3 Material

- Design a poster to communicate ways to conserve natural resources.
- Identify the endangered animals of Pakistan.
- Suggest ways to protect the endangered animals.
- Identify animals, which are extinct.

Chapter 1

Water

In class two you learnt about natural resources, the resources provided to us by nature. Can you name some of them.

You have learned in class two that nearly three-quarters of the earth's surface is covered with water. Most of this water lies in big oceans and seas like the Indian Ocean and the Arabian Sea. This water is salt water. Fresh water is found in rivers, lakes and streams. Do you know there is also water below the ground between the rocks. There is even water in the air. The clouds are made up of tiny drops of water.

Every living thing on earth depends on water. Animals need water to drink and some of them make their home in water. Plants need water to grow. We need water to drink, cook our food and take a bath.

Water is needed to grow crops. Since we get very little rain, the land is irrigated by tube wells and by digging canals from rivers. Water is also used to make things in factories, to wash and clean equipment and to cool down machines. Do you know that about a litre of water was used to make this sheet of paper!

Do you know!

Salt water is changed into fresh water in the water cycle



Pakistan is a very big country with lots of people, farms and factories. The water available is not enough for all the things we need it for. But rather than caring for this important natural resource, we, Pakistanis are destroying it in many ways:

- We pollute the water by throwing garbage, sewage and waste from factories into it.
- We waste water by over watering our crops, leaving our taps open and using the hose pipe to wash our floors and cars, and not repairing leaky pipes and taps.

There are many ways in which we can save water.

- We should not throw garbage in the water and stop others from doing so as well.
- We should used a glass when brushing our teeth and take short showers.
- We should use a bucket and mop for our floors and cars.
- We should repair leaky pipes and taps.

ACTIVITIES

A. The water in the oceans and seas is salt water. The water in the rivers and lakes is fresh water. List all the things salt water are used for in column A, the things fresh water is used for in column B, the things both are used for in column C.

Column A Uses of salt water in oceans and seas	Column B Uses of fresh water in rivers and lakes	Column C Uses of salt and fresh water

Chapter 2 Land

Land is a very important natural resource. The land is used for many purposes. Much of the land is used for farming. Land is also used for building our homes, school, health care centres, factories and offices.

ACTIVITY

Walk around your neighbourhood and list all the purposes the land is used for.

____

____

Soil

The top most layer of the earth is known as soil. For agriculture the soil must be deep enough to firmly hold the roots of plants. A few centimeters of topsoil is also needed. Topsoil is composed of particles of rock, minerals and living things like earthworms. The kind of soil affects the quality of crops. The best soils for growing crops need both clay and sand because it drains quickly and is easy to work on.



Clay soil

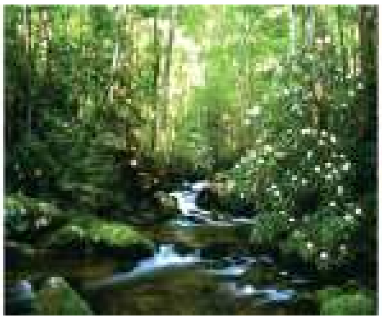


Sand

Fig 2.1 Different kind of soil

Forests

The land on which tall trees grow very close together so that they almost cover the whole ground is called a forest.


Rainforests | Temperate forests | Mangrove forests

Fig 2.2 Different kinds of forests

ACTIVITY

Look at the pictures and list the reasons why forests are important.

(i) ______________________________

(ii) ______________________________

(iii) ______________________________

Importance of forests

Below are some reasons why forests are important.

- Forests supply us with fruits, honey and nuts.
- Plants are use as medicines or to make medicines.
- The wood of the trees is used to make furniture, roofs of houses and fishing boats.

  The wood of the trees is used as a fuel for cooking.

Teacher's note: Encourage students to think and share their observations.

- Forests provide animals with a place to live.
- Trees help to clean our air. They take in Carbon dioxide to prepare their food and give out Oxygen.
- Trees protect the soil from being washed away when it rains. The roots of the trees hold the soil together.

Reasons for deforestation

In many parts of the world forests are being cut down (deforestation) to make land available to satisfy the needs of people. Look at figure 2.3 for the reasons for deforestation.

- Use the land for farming or mining.
- Build houses for people to live.
- Build roads.
- Use the wood for different purposes like making furniture.
- Used as firewood to cook and heat our homes.

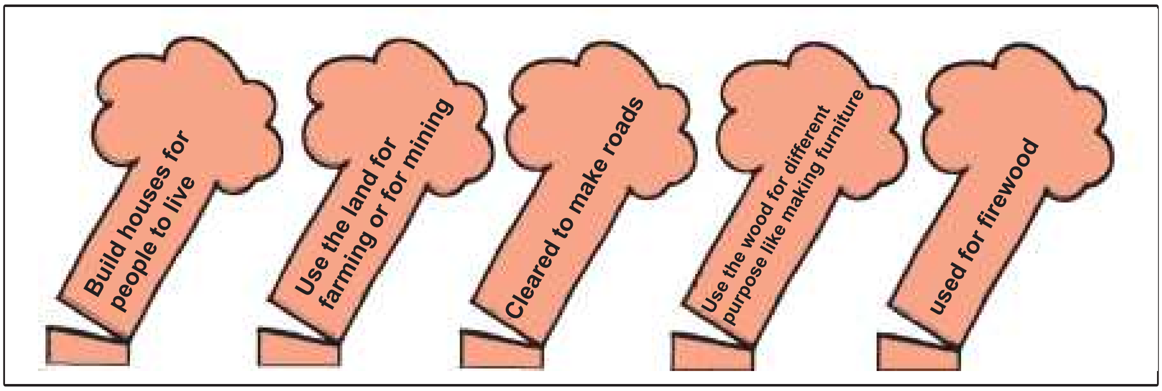


Fig 2.3 Reasons for deforestation

Effects of deforestation

The cutting down of forests by people have many negative effects on the animals that live in forests. It also badly affects the land, soil and climate.



Fig 2.4 People cutting tress

Forests are the home of many different animals. When the trees in the forests are cut down, the animals who depend on the plants for food have to move to the remaining parts of the forest. Other animals follow them. The remaining forests is unable to support all the animals trying to live there. As a result, some species of animals die out (extinct).



Peacock



Chakur

Fig 2.5 Animals in Sindh that are dying out

Many forests are cut down to obtain land for farming. Without the protection of the trees, the soil dries out in the heat and wind. After a few years, the land becomes useless. Farmers must cut more of the forests to get new land for farming.

When forests on mountains are cut down their roots are no longer there to hold the soil resulting in landslides. The soil is washed down into the rivers. This causes the rivers to rise and flood.

You have learnt that trees absorb Carbon dioxide. When forests are cut down they are fewer trees and therefore, more Carbon dioxide in the air. Carbon dioxide traps heat from the sun, so the world's climate will become hotter in the future.

ACTIVITY

List three negative effects on animals, soil and climate due to cutting down of forests.

1. ____

   ____

2. ____

   ____

3. ____

   ____

How to save forests

We can do many things to save forests. For example:

- Reduce our demand for things made of wood.
- Plant many trees in an area of land that can be used to make the things we want.
- Replant trees in forests such as on the mountains.



Fig 2.6 Children actively engaged in growing trees to reforest the land

ACTIVITY

A. List three things we can do to save forest.

1. ____

2. ____

3. ____

B. What would happen if all trees were cut down? Think about this statement and write three positive points and three negative points.

Positive points	Negative points
1.	1.
2.	2.
3.	3.

C. How does the cutting down of forests affect:

a) Animals ______________________________________

____

b) Climate ______________________________________

____

c) Land ______________________________________

____

D. Plant a sapling (baby tree) and take good care of it until it becomes a tree.

Chapter
3
Minerals

Minerals are another important natural resource. They are found inside the earth. Mineral include metals like gold, silver, copper, iron and tin. They also include non-metals like mineral oil, natural gas, coal, marble and rock salt. Look at the picture below and think of the ways in which mineral resources are important for us.


Gold (metal)


Silver (metal)


Coal (nonmetal)


Marble (nonmetal)

Below are some reasons why minerals are important. Compare them with the reasons you thought of.

- Minerals such as mineral oil, natural gas and coal are used as a fuel for cars, for cooking and for generating electricity.
- Minerals such as marble are used for decorative purposes.
- The mineral iron is used in the preparation of steel. Both iron and steel are used for making machines.
- Minerals such as silver and gold are used in the making of jewellery.
- The mineral rock salt is used as salt in our food and for making decorative pieces.

The mineral resources of the earth are limited, therefore, we should use them carefully.

END OF UNIT EXERCISE

A. Fill in the blanks with three uses of each natural resource

1. Forests provide us with_______, __________, and ________.
2. We use mineral oil for __________,_________ and ________.
3. Water is used for _________,___________ and ________.
4. The land is used for _________,__________ and ________.

B. Answer the following

1. What are natural resources?

   ____

2. What is a forest?

   ____

3. Endangered animals of Pakistan. Name three animals species have died out become extinct.

   (i) ____

   (ii) ____

   (iii) ____

4. List three ways in which we can protect endangered animals.

   (i) ____

   (ii) ____

   (iii) ____

5. Predict what will happen if we run out of natural gas.

   ____

C. In the table below write three ways to save water, forest, animals and minerals.

	Water	Forest	Animals	Minerals
1.				
2.				
3.				

D. For one week keep a record of things you do to save water. At the end of the week share the same with the class.

Day 1 ______________________________

Day 2 ______________________________

Day 3 ______________________________

Day 4 ______________________________

Day 5 ______________________________

Day 6 ______________________________

Day 7 ______________________________

E. Make a poster to teach others of the ways to conserve natural resources.

Unit 7. UNDERSTATING THE PAST AND PRESENT

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Karachi in the past

- Recognize that present time is different from the past.

Chapter 2 Karachi in the present

- Identify how schools, communities, transportation have changed over time (from the given pictures).
- Sequence events in a narrative in chronological order.

Chapter 1

Karachi in the past

Today, Karachi is the largest city of Sindh and even of Pakistan. More than 20 million (20,000,000) people live here. It is a big and busy city. Do you know that Karachi was not always so big and busy? Let's read the story of Karachi and find out how Karachi has changed over the years.

Three hundred years ago, Karachi was a small village surrounded by trees and mangrove forests. Most of the people in the village were poor fisher-folk.

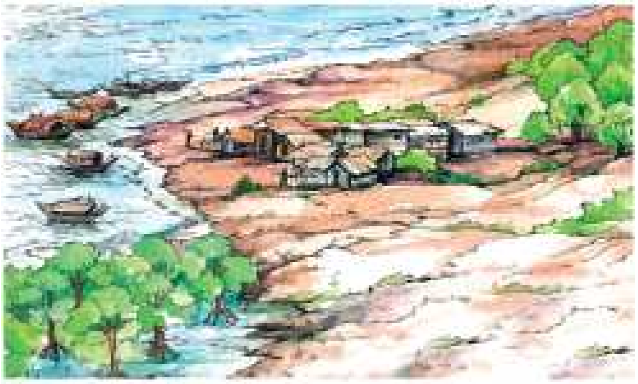


Fig: 1.1 Karachi was a small village three hundred years ago

From a small fishing village to a trading post (1700-1730)



Fig 1.2 The small fishing village of Karachi growing into a commercial centre

One day, people from another village that lay by the sea, came to live in Karachi. They were traders. They used to buy and sell goods to other countries. The small fishing village now became a busy trading place. The village became larger and the people richer. To protect themselves they built a high wall around the village with two gates called the Khara darwaza (salty gate) and the Mitha Darwaza (sweet gate).

The Kalhoras and Talpurs 1730-1843

Some years later, Sindh was taken over by a tribe called the Kalhoras. Another tribe the Talpurs started fighting with the Kalhoras because they wanted to rule Sindh. The Kalhoras asked the ruler of Kalat to help them fight the Talpurs. With his help, they won. To thank him for his help, they gave him Karachi as a present.



Fig 1.3 Khan of Kalat receiving Karachi as a gift from the Kalhora ruler

After some time, the Talpurs became the rulers of Sindh. They wanted Karachi so they decided to capture it by surrounding it. After a long time they captured it. They built a fort at Manora and put canons on it to protect Karachi.



Fig 1.4 H.H Amir Mir Muhammad Khan of Hyderabad with his sons

The British 1839-1947

After the Talpurs had ruled Karachi for some time, the British came to trade. At first, the Talpurs allowed them to trade. After a little while, the Talpurs told the British to stop trading and leave Karachi. In 1843, British conquered Sindh and eventually the British took over Karachi in 1839.

British soldiers came to live in Karachi. To meet their needs they built schools, churches and markets. They also built roads and railway lines. In 1924, they built the first airport of British India in Karachi.



A view of railway station



Trinity Church



Empress Market



A view of old airport 1924

Various pictures of Karachi city during British rule

ACTIVITY

A. Fill in the blanks

1. 300 years ago Karachi was a ________ .
2. The fishing village became a trading place when the ________ came to Karachi.
3. The people of Karachi built a high wall to protect themselves. They build two gates in this wall named _______ and _______ .

B. Put these events in chronological order by numbering them (1,2, 3,4,5,6) in order of time starting from the past to the present.

Pakistan came into being
The Talpurs captured Karachi
The people of Karachi were fisher-folk
The British took control of Karachi
The Kalhoras gave Karachi to the Khan of Kalat
Karachi became the capital of Sindh

C. Draw a picture of the clothes people worn by the Karachi when Karachi was a fishing village, under Talpurs and British rule.

Clothes worn when it was a fishing village	Clothes worn by the Talpurs	Clothes worn during British rule

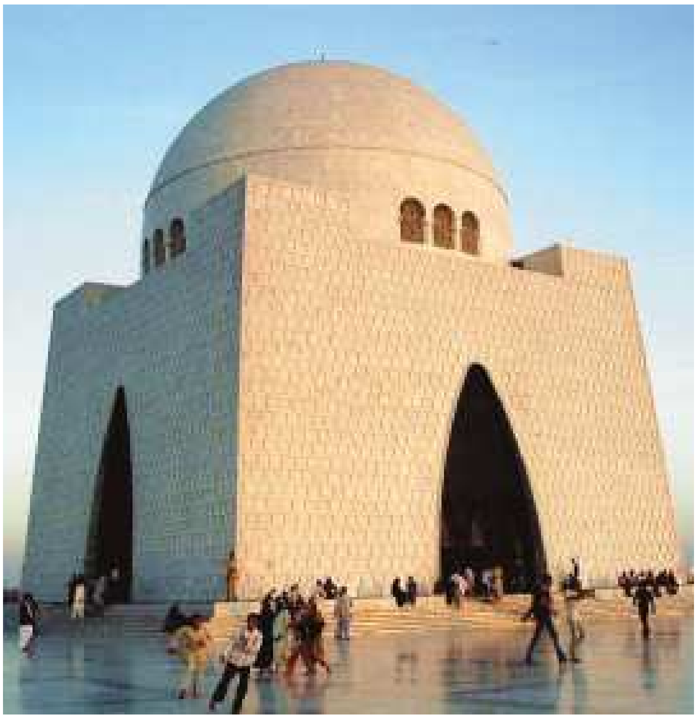
Teacher's note Explain to students that the clothes people wear change over time. They should find out and draw the clothes worn during the time Karachi was a fishing village, when it was ruled by the Talpurs and when it was ruled by the British. Discuss the different clothes worn today.

Chapter 2 Karachi in the present

Karachi after independence

The people of British India did not like being ruled by the British. They wanted to rule their country themselves! The Muslims in British India demanded their own country. On midnight of 14th August 1947, two independent countries, Pakistan and India came into being.

After independence, many Hindus left Karachi to go and live in India. Many more Muslims came from India to live in Karachi. Karachi was made the capital of Pakistan. Being the capital city many government workers came to live and work here. In a few years the number of people living in Karachi increased greatly. In 1960, Islamabad was made the capital of Pakistan. Karachi became the capital of Sindh.



Quaid-i-Azam's *Mazar*



Habib Bank Plaza

Views of Karachi city today

Today, Karachi is the industrial and commercial center of Pakistan. People from all over Pakistan live here, making Karachi a busy and lively city. Karachi welcomes all of them.



Kiamari Port



A busy road in Karachi



People shopping in a market



Pakistan steel Karachi



Clifton Beach



Dreamworld Water Park

Life in Karachi today

ACTIVITY

A. Fill in the blanks

1. Karachi was the capital of Pakistan from _______ to _______.
2. Karachi is the _______ city of Sindh, Pakistan.
3. The capital of Pakistan was shifted to Islamabad in _______ .

B. Complete the table

In column A some thing for which Karachi is well known is given. In column B give its name.

Column-A	Column-B
A port	
A mall	
A beach	
A market	
An industry	
A road	
A school	
A hospital	
A park	
An airport	

END OF UNIT EXERCISE

A. Fill in the blanks

1. Karachi was a small fishing village _______ years ago.
2. The Talpurs gave _______ to the Khan of Kalat.
3. Manora was built by the _______.
4. The British ruled Karachi from _______ to _______.
5. The first capital of Pakistan was _______.

B. Answer the following questions

1. What did the people of Karachi do to protect their village?
2. Why did the Kalohars and Talpurs fight?
3. List three changes in Karachi brought by the British ______.
4. List five reasons why Karachi is famous today ______.

C. Show how Karachi has changed over time by completing the table below. (Fill only the boxes for which you have information from reading and looking at the pictures).

	A fishing and Trading Village 1700-1730	The Kalhoras and Talpurs 1730-1839	The British 1839-1947	After Independence 1947-2013
An important event				
Work people did				
What the people did to protect themselves				
How building have changed				
How transport has changed				

C. Compare Karachi today with Karachi as a fishing village.

(i) Describe the fishing village that Karachi was in the past.

(ii) Describe Karachi today.

(iii) How has Karachi changed?

D. Make a timeline showing how you have changed from the day you were born to today. If you have pictures put them on the timeline.

I was born	I started to walk when I was	I started to talk when I was	I started school when I was	My baby brother /sister was born on

E. Look at the pictures of transport used in Karachi. (i). Write numbers 1-3 on the old means of transportation and number 4,5,6 on the new means of transportation. Identify three ways in which they have changed.








F Working with your colleagues in groups of 4, identify 4 ways in which life changed for the fisher-folk after the traders came. 2. How do you think the fisher-folk felt?

G. List the four non-violent ways to solve disagreements.

Unit 8. UNDERSTANDING AND WORKING OUT OUR DISAGREEMENTS

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Conflict and its causes

- Identify the disagreements / conflicts that occur at home, in school and in the local community (from stories and role plays)
- Identify the feelings of people in different conflicting situations.
- Identify causes of conflict.

Chapter 2 Preventing conflict

- Describe the impact of conflict on the people involved and the larger community.

Chapter 3 Resolving conflict

- Identify the ways in which people resolve conflicts at home, in school and in the local community.
- Suggest strategies for preventing conflicts.
- Use discussion and problem solving methods to work out disagreement.

Chapter 1

Conflict and its causes

What is conflict?

Most of us have had disagreements about something important. At home and at school. Having disagreements with others is called conflict. At home there are often disagreements over watching Television. Someone wants to watch one programme and someone else another. At school, there are conflicts over an older child taking away a younger child's money or lunch.



In the community there are conflicts over whether girls should be sent to school or not.

ACTIVITY

List three disagreements that occur in your home, your school and your community.

Disagreements at home	Disagreements at school	Disagreements in the community

Causes of conflict

Let us look at what caused the conflict in the examples above. At home it is over the TV, there is only one TV but everyone wants to see a TV programme of his / her choice. The conflict is over **resources.** At school the conflict is over older children bullying younger children. The conflict is over **power**

(ability to influence others). In the community the conflict is over sending girls to school or not. The conflict is over **values.** The causes of conflict are generally related to resources, power (ability to influence others) and values. Look at the examples of conflict you have listed in the above activity. What is the cause of each conflict?

ACTIVITY

Read the following stories and (i) Identify the cause of the conflict. (ii) Identify the feelings of each person in the conflict (choose the feeling from the words given in the word box).

angry sad happy hurt jealous pleased ashamed embarrassed

1. Both Gul and Sara are colouring. There is only one box of colour pencils. Gul and Sara start arguing over who would use the red pencil in the box. Sara takes the red pencil. Gul hits her and takes the red pencil from her.

Cause of conflict ____________________

Gul feels ________________ Sara feels ________________

2. Zia and Akram are playing on the same cricket team. They both want to bat first. Akram is bigger so he grabs the bat. Zia says, "Lets toss a coin to see who bats first". Akram says, "OK. That is the fair thing to do".

Cause of conflict ____________________

Zia feels ________________ Akram feels ________________

3. All the children are taking a Math test. Sheeba accuses Mehreen of cheating. The teacher takes Mehreen's paper and writes a big “F” on it. When Sheeba comes out of class Mehreen starts fighting with her. The teacher sends Mehreen to the Principal's office who calls her mother to discuss her daughter's behavior. Mehreen's mother is very angry. On her way home she stops at Sheeba's house and argues with Sheeba's mother. She tells her she no longer wants to be her friend and she will tell all the neighbours to stop talking to her.

Cause of conflict ____________________

Sheeba feels _______________ Mehreen feels _______________

Mehreen's mother feels ________________

Sheeba's mother feels_________________

As we read in the Sheeba and Mehreen story, conflict can quickly become worse. A conflict that started between two children in class has now become a conflict in the community. It is important that we learn how to prevent conflict and if a conflict occurs how to resolve it peacefully. In the next few chapters you will learn how to prevent and resolve.

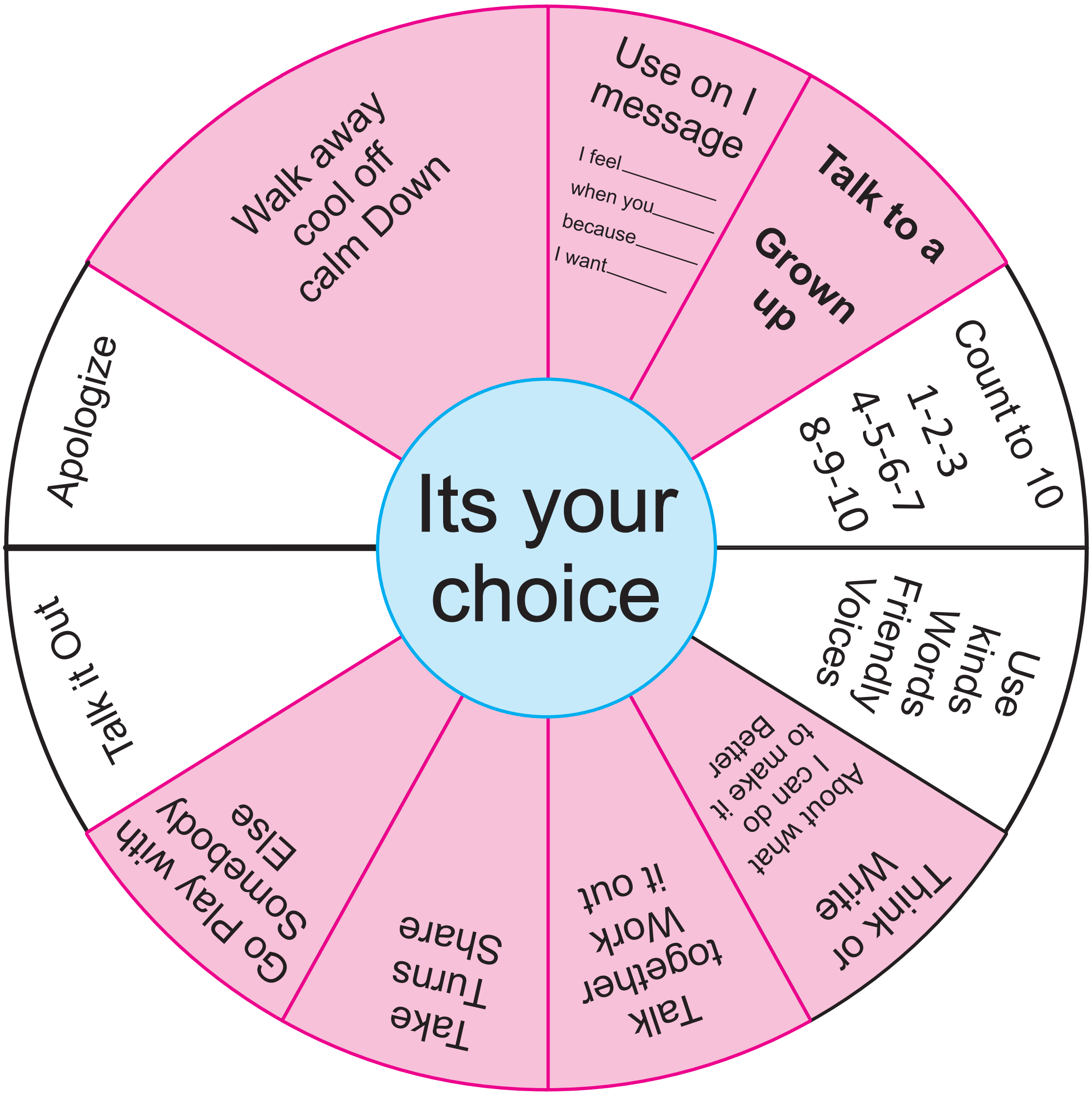
Chapter 2

Preventing conflict

Conflicting situations may arise at home, in school and in the community. It is always best to avoid conflicts because once they have started, they are hard to control. Below are some things that we can do to prevent conflicts:

- Respect other people's feelings
- Use kind words such as please and thank you.
- Do not be quick to judge, remember everyone makes mistakes, including you.
- Offer support to your classmates who need your help. For example, you can share your book with your classmate who may have forgotten his / her book at home.
- Keep friends who are positive, obey the school rules, do their school work and respect others.
- Try to develop a calm nature, do not be aggressive.
- Walk away from a conflict until you calm down.
- If a conflict starts, at home, at school or in your community make sure to inform your parents and teachers.

Look at the conflict prevention wheel. There are many ways in which to prevent conflict given on it. We can use these ideas to prevent conflicts.



The Conflict prevention wheel

ACTIVITY

Make the conflict prevention wheel and put it up in a place in your home for everyone to see.

Chapter 3

Resolving conflict

It is important to remember that doing things you learnt in chapter 2 will help prevent conflict. Sometimes, however, conflict will occur. Remember conflict itself is not bad. It is the way we deal with it that makes it good or bad. If we deal with conflict in a positive way the conflict is resolved. If we deal with it in a negative way it often makes the conflict worse. In table 3.1 the positive and negative ways of dealing with conflict are listed.

Positive ways to resolve conflict	Negative ways to resolve conflict
Agree to resolve the conflict	Being rude
No name calling	Blaming one another
Take turns talking. Do not interrupt.	Not listening when the other is speaking
Be clear and truthful about what is bothering you	Claiming to be right even when you are wrong
Listen to the other person to under stand how he or she sees the problem	Screaming on top of your voice
Stay calm and do not get angry	Threatening to hit or being violent

Table 3.1 Positive and negative ways of dealing with conflict

Discussion as a way of resolving conflicts

One way of resolving conflicts is by discussing our problems. When we discuss our problems we can work out our disagreements. Usually a conflict arises when we use “blaming” messages. For example, when working on a project you might say, “You are spoiling our project. You are Stupid. You never do anything right”. A blaming message says what's wrong with the person. A blaming message puts the person on the defensive and leads to more conflict.

A good way to resolve conflict is by using "I messages". I-messages are statements about your feelings. It tells the other person what is bothering you and why. For example, when working on a project you might say, "It really bothers me when we argue over everything. We could do a better job if we worked together instead of arguing all the time". An "I-message" is constructive and points to a solution and therefore, often leads to the conflict getting resolved.



ACTIVITY

In groups of 3 write role play using, "I-messages" in the following situations. Come to the front of the class and enact the role play.

1. Someone takes your pencil box without asking you.
2. Someone takes out your copy from your bag without asking you.
3. Someone ask for some money in break but does not return it.

Problem-solving Strategy to resolve conflicts

The following strategy also helps to resolve conflicts.

1. **Stop** Cool off. Do not let the conflict get worse. The less angry you are the easier it will be to solve the problem.
2. **Talk and Listen** What is the conflict about? What is causing the disagreement? What does each of you want or not want?
3. **Think** of positive options. How can you meet each other's needs and be fair.
4. **Choose** A positive option each of you can agree on if you still can not agree, ask someone else (an outsider) to help resolve the conflict. Elders are wiser than children, so if you have a conflict with someone and you are having a problem solving it, ask an elder person to help you out.

END OF UNIT EXERCISE

A. Fill in the blanks with the most suitable answer

(i) After you resolve a conflict you should _____________ .

a) shake hands
b) slap each other
c) call each other bad names

(ii) If two of your friends are fighting you should __________ .

a) take sides
b) listen and help resolve their conflict
c) walk away

(iii) If you can't resolve the conflict yourself you should _____.

a) shout on top of your voice
b) think negatively
c) take help from your elders

(iv) While resolving the conflict if you find out that you are wrong you should ________

a) hide it
b) admit it and apologize
c) deny it

B. Read the following stories below. (i) Identify the cause of the conflict. (ii) Identify the feelings of each person in the conflict. (iii) Identify the effect of the conflict on those involved. (iv) Suggest a way to resolve the conflict?

1. Zain and Wahab were playing a game of catch at home. Wahab didn't catch the ball so it fell in the dirt. Zain ordered Wahab to go and pick up the ball because he did not catch it. Wahab refused. He told Zain it was his fault that the ball fell in the dirt because he did not throw the ball properly. Zain picks up the ball and wipes the dirt off using Wahab's shirt. Wahab gets angry and slaps Zain. Zain runs in and tells him mother the Wahab slapped him. His mother punishes Wahab.

(i) Cause of the conflict ________________

(ii) Zain feels ________________ Wahab feels ________________

(iii) What is the effect of the conflict on the family? _____________

(iv) How can Zain and Wahab resolve the conflict?

____

2. Salma, Fatima and Ayesha are responsible for deciding on how to make a poster to teach people the importance of saving water. Each has a different idea for the poster and they start arguing about whose idea is better. The whole class stops doing their work as they are disturbed by the arguing. The teacher tells them to stop arguing and get on with the work.

(i) Cause of the conflict ______

(ii) Salma feels______ Fatima feels ______ Ayesha feels______

(iii) What is the effect of the conflict on the class?

(iv) How can the girls resolve the conflict?

____

3. Everyday at 7 pm water comes in the community. Every household in the community puts their cans in a line for water. One day, Aslam replaces his can with Akram's whose can is at the top of the line. Akram sees him. He takes Akram's can and throws it far away. Aslam gets angry and hits Akram. Akram then hits Aslam. The whole community then gathers to try and stop them fighting.

(i) Cause of the conflict ______________

(ii) Aslam feels ______________ Akram feels ______________

(iii) How can the conflict be resolved? ______________

(iv) How is the community affected by the conflict?______________

C. Read the following conflict situations and write what can be done to prevent the conflict.

(i) Gul and Sara are arguing over who would get to use the box of colour pencils.

(ii) Zia and Seema are playing on the same cricket team. When it is their team's turn both of them start arguing over who will bat first.

(iii) Ali and Ghani both want to watch different programs on TV. They start fighting.

(iv) Razia cleans her house and throws the garbage in front of her neighbor Seema's house. Her neighbour sees her and calls her bad names.

(v) Two children are playing in the neighbourhood. They start fighting. Their parents come out, call each other names, take their children in and say they will never let them play together again.

Unit 9. The SUN AND ITS IMPACT ON OUR PLANET

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1. Appearance of the sun from the Earth.

- Recognize that while living on the earth we see the sun rising in the east and setting in the west.

Chapter 2. The Four cardinal direction

- Name the four cardinal directions.
- Name places towards North, South, East and West of the school/ home.

Chapter 3. Sun and shadow

- Describe the size of the shadow with the position of the sun

Chapter 4. Telling time using the sun

- Recognize the size of the shadow created by the position of the sun was used to tell the estimated time.

Chapter 1 Appearance of the sun from the earth

Look at the picture below. In the picture you can see the earth, the sun and the moon. You can also see that the sun is bigger than the earth and the moon. It looks smaller to us because it is very very far away from us.

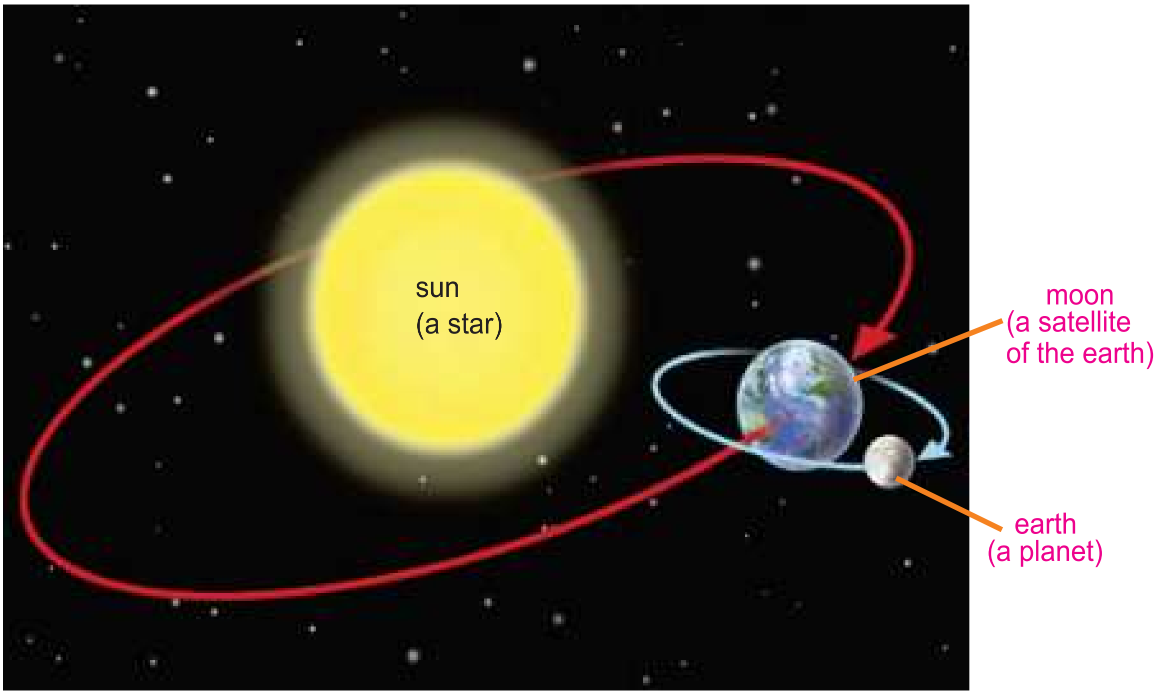


Fig 1.1 The sun, earth and moon

The earth is a planet. Planets are big and round like ball. Planets move around a star. The earth moves around the sun, (revolves) which is a very bright star. The sun is very bright because it is made up of very hot gases. Therefore, it gives us heat and light.

The earth also rotates (turns, spins) on its axis just like a top. The earth makes one complete rotation on its axis each day. This rotation of the earth causes day and night. The part of the earth that is facing the sun has day. The part of the earth that is facing away from the sun has night (see fig 1.2).

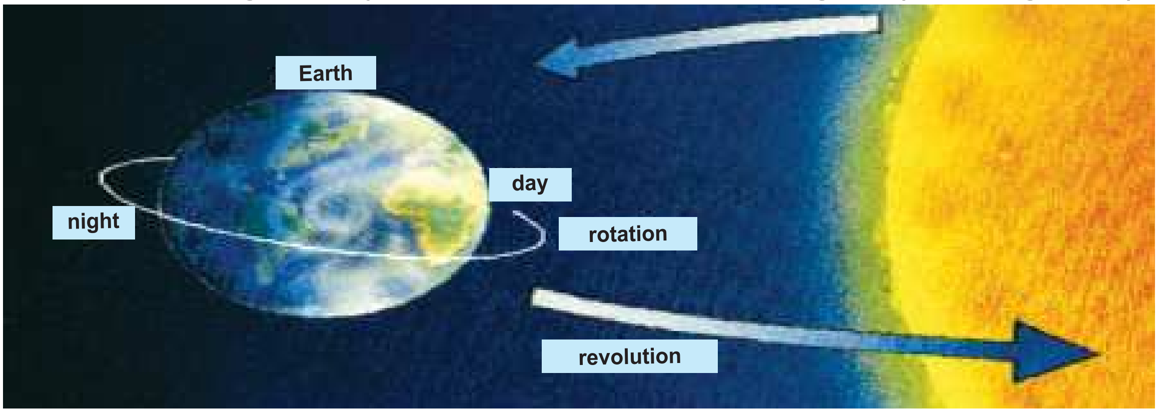


Figure 1.2 The earth rotate on its axis as well as revolves around the sun

In the morning we say, “The sun is rising”. And in the evening we say, “The sun is setting”. Actually, the sun does not move at all. It is the earth that is rotating (spinning around). As the earth rotates we in Pakistan see the sun appearing to rise in the east in the morning.



Figure 1.3 Journey of the sun as it appears across the sky

As the earth continues to rotate we see more and more of the sun until it is directly above us at noon. As the earth continues to rotate, the part where we are has turned so far that we

cannot see the sun anymore. It appears to have set in the west and the day ends. This is what happens each and everyday.

ACTIVITIES

A. Answer the following questions

1. Why do we have day and night?

   ____

2. What causes us to have a sunset and sunrise?

   ____

3. Which way would you face to look in the direction of the sun
   (a) In the morning? (b) In the middle of the day?
   (c) In the afternoon?

   ____



Fig 1.4 The sunrise, sun middle of the day and sunset

B.

1a. Do you know in which direction would you look to see the Sun when you get up in the morning? _____________

1b. Is it low in the sky or high in the sky? _____________

2a. Where will the sun be in the middle of the day, around . lunch time? _____________

2b Is it low in the sky or high in the sky?

3a. Where will we see the sun at the end of the day when it sets? _____________

3b. Is it low in the sky or high in the sky? _____________

Chapter 2

THE FOUR CARDINAL DIRECTIONS

There are four main or cardinal directions: North, East, South and West. We can tell these directions using two methods. The first method of identifying these directions uses the rising and setting of the sun as directional reference points. Because the earth rotates from west to east, the sun appears to rise in the east and set in the west. The remaining two cardinal directions, North and South, are perpendicular to the first two.



Fig 2.1 A child facing East

The second method uses the poles of the earth, the North Pole and the South Pole, as directional reference points.



Fig 2.2 The Globe showing North Pole and South Pole

Teacher's note To help students understand the four directions, make cards with the names of the four cardinal directions: north, east, south and west written on them, Paste or hang them on four walls of classroom in the correct cardinal direction. Now your classroom is ready for you to do the activities: Ask students to stand up and turn to face the East, Wes, North or South. With the students sitting down, ask different students to tell you who is sitting in the North, South, East or West of them. Keep the cards on the four walls of the classroom throughout the year, periodically asking the students to stand and point in the direction you name.

There is a special object called a compass (see fig 2.3), that shows us the four main or cardinal directions: North, East, South and West.

To know where places are in relation to one another, people use a system for telling direction. Cardinal directions are one set of directions that people around the world use.

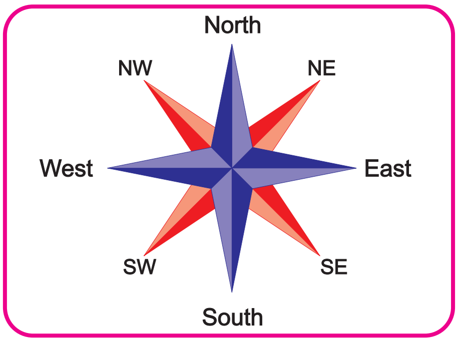


Fig 2.3 A compass

ACTIVITY

A. Complete the table. in column A the direction is given. in column B write the name of the student sitting in each direction around you.

Column A Direction	Column B Name of student sitting in that direction
North	
South	
East	
West	

B. Look at the map of Karachi. Look at the compass rose on it. It shows the directions, North, East, South and West.

Find the Mazar-e-Quaid on the map



(i) Name Two roads in the North of it.

____

____

(ii) Name a market and hotel in the South of it.

____

(iii) In which direction is the zoological gardens?

____

(iv) In which direction is Hill Park?

____

Chapter 3

SUN AND SHADOW

How shadows are formed

Have you ever seen your shadow? Do you know what makes a shadow? Shadows are formed when light from the sun or any other light source cannot pass through an object.

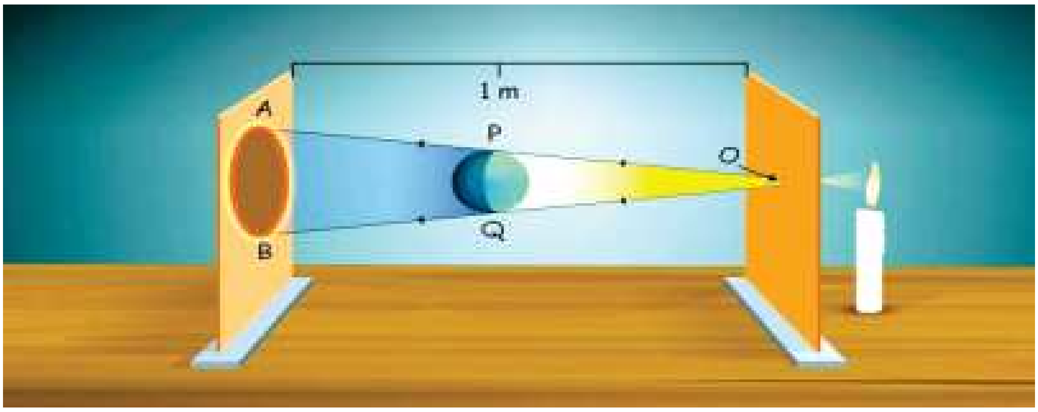


Fig 3.1 Formation of shadow

ACTIVITY

Shadow hunt

Explain to the students that they are going outside in the schoolyard for a “shadow hunt.” Tell them what they have to do when they are outside in the sun. Ask them to face the sun but not to look at it directly as it will hurt their eyes.

1. List all the shadows in the school yard.

   ____

2. Identify the direction of all the shadows in the schoolyard (towards the Sun or away from the sun).

   ____

3. Is the shape of the shadows similar to the objects in front of it?

   ____

4. Look closely at your own shadow, make your shadow move, make you shadow stand very still.

   ____

5. Step on the shadow of your friend. Did his shadow get hurt?

   ____

6. Move between your friend and the sun so that you overshadow his / her shadow. Ask your friend what happened to his / her shadow? (you blocked the light for the shadow of your friend).

   ____

7. Move away from your friend? Did he get his shadow again or not?

   ____

How shadows change

The position of the light source changes the size and direction of the shadow (see fig 3.2).

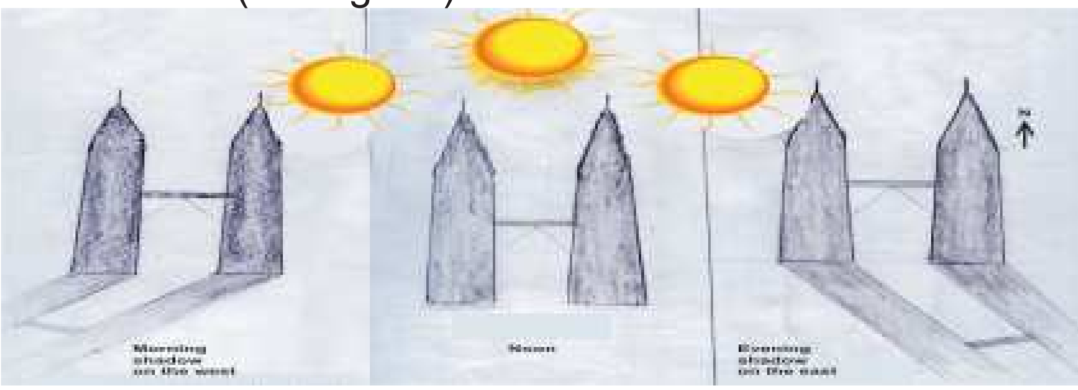


Fig 3.2 change in size and direction of shadows as the Sun changes its position

Why does this happen?

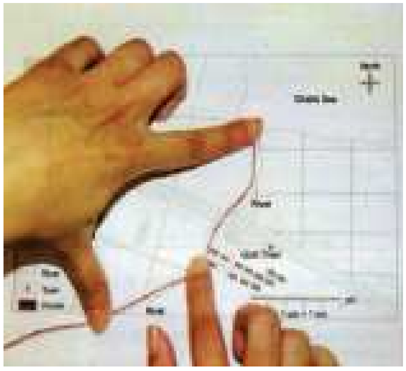
- In the morning and afternoon, the sun rises on the horizon and makes long shadows.
- At noon, the sun is directly overhead and makes short shadows.
- The rotation of the earth on its axis causes the length and position of a shadow to change.

Teacher's note Discuss the records of students observations during the shadow hunt activity in class

ACTIVITIES Fun in the Sun

A. Tell the students that they are going to see how the size of a shadow changes with the position of sun. Tell them that to do this they will go in the sun thrice today, once in the morning, once at noon and once after noon to measure the size of the shadow of an object.

Divide the students in pairs. Give each pair of students the following material.



(i) A wooden scale (12 inches long)
(ii) A long piece of thread (2 meters long)

1. Go in the morning and fix the wooden scale vertically in the ground in the sun.
2. Now stretch the thread from the scale towards the end of the shadow.
3. Cut the thread, so you are left with a piece of thread that is the length of the shadow.
4. In class measure the length of the thread and note it down.
5. Repeat this activity again at noon and after noon.

B. Fill the table for the size of shadow of the wooden scale

Size of the shadow of wooden scale	In morning	At noon	After noon

C. Answer the questions

1. What happens to shadows during the day? (do they change or stay the same)

____

2. When was the shadow the longest?

____

3. When was the shadow the shortest?

____

Chapter 4

TELLING TIME USING THE SUN

If someone asks you what time is it? You look at your watch or a clock, read the time, and tell them.

Have you ever wondered how people in olden days, when there were no clocks and watches told the time? They used the position of the Sun in the sky. They used sundials. They told the time by looking at the shadow cast by the Sun as it shines on the pointer of a sundial (see fig 4.1). The sundial works by casting a shadow of different lengths, in different positions, at different times of the day. The length and position of the shadow helped people to tell the time.



Fig 4.1 A sundial

END OF UNIT EXERCISE

A. Mark (✓)for sentences that are true and (✗)for sentences that are false in the given space.

1. The sun does not move, but appears to move across the sky.________
2. The earth rotates on its axis and also moves around the sun.________
3. The earth rotates from east to west._________
4. The movement of the earth around the Sun makes day and night._________
5. The sun rises in the east and sets in the west.__________

B. Answer the following questions

1. Name the four (4) cardinal directions.

____

2. How is a shadow formed?

____

3. What instrument was used to tell the time using the sun?

____

C. Learn and recite the “Four Directions” poem

"North, East, South, West,
We are third graders,
and we are the best!"

D. Practical work

Make your own Sundials

Material needed:

- A large piece of paper
- A new pencil
- A marker
- Some clay

Procedure

1. Put a dot in the center of the paper.
2. Put the clay on the dot and stick your new pencil on the clay .
3. Look at the shadow cast by the pencil and trace it with the marker. Next to the traced shadow write the current time.
4. Every hour keep going outside and tracing the shadow and writing the time with the marker.
5. When the sun sets bring your sundial in.
6. Observe how the shadow and time recorded traveled in a circular path around the clay. Does it resemble the pattern on modern clocks and watches? ______________

Unit 10. INVENTORS AND INVENTIONS

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Inventions

- Explain why inventors are important.
- Identify the qualities /attributes of an inventor.
- Identify major objects invented and their inventors over the last century.
- Imagine how life would be without any one major invention

Chapter 2 How people invent things?

- Classify inventions that improved farming, household chores, space exploration and communication.
- Compose a paragraph about their favorite invention.
- Predict how an invention could change life in the future.

Chapter 3 New inventions from 1900 to 2000

- Identify recent inventions (personal computers fax. Machines, microwaves CDs etc.), and how they have changed the way people work and play.

Chapter 4 Qualities of an inventor

- Gather and organize information and write a report about a recent invention.

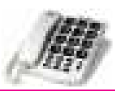
Chapter 1 Inventions

Look around you. What can you see? Do you know that most of these things did not exist many, many years ago. They were all created or invented by someone.

Anything new in the world made by people is an invention. It can be the discovery or creation of something new, a new process or a new use for an existing material. Any improve--ment in any of these is also an invention. Can you think of some latest inventions?

ACTIVITY

Complete the given table

Inventions	Name of invention.	What is it used for?	How does it help us?	What would happen if it was not invented?	In what ways has life changed because of it?
					
					
					
					
					
					

Teacher's note Give students a basic explanation of technology and inventions, discussing how inventions like the pencil, watch, light bulb, and telephone were created by everyday people just like them who identified problems in their lives and were motivated to come up with new or better ideas to make life easier.

Chapter 2

HOW PEOPLE INVENT THINGS

Most of the things we use, small things like pencils and safety pins and large things like automobiles and aeroplanes were all invented by people. But how do people get ideas for a new invention? How do they take their ideas and turn them into new and useful things? Here are three stories of how things were invented.

Story 1 Wanting to know why something happened can lead a person to invent something.

A man who was an engineer and lived in Switzerland, liked to climb mountains.

One day, he went mountain climbing. He noticed that many burrs were stuck to his clothes. He thought about what made the burrs stick so tightly to his clothes.



Burr: A seed or dry fruit with hooks that attach themselves to fur or clothing

He looked at a burr closely. He saw that each spine on the burr had a little hook at the end! These hooks stuck in the threads of his clothes.



This gave him an idea. He imagined making strips of little hooks and strips of looped threads for them to stick to. He thought this would be a good way to stick things together, and still be able to pull them apart.



People laughed at his idea. But he did not give up the idea of making the strips of hooks and loops. After many, many tries, he did it! He called his invention VELCRO.





Today we use VELCRO to fasten shoes, in wallets and in many other ways. The man is George de Mestral and he is the inventor of VELCRO.

ACTIVITY

List three things that velcro is used for.

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________

Story 2 Wanting to make the lives of people better can lead a person to invent something

This is the story about a person who invented many things. His first invention was a machine that cleaned wheat, when he was just fourteen years old!



He went on to invent many new things, many of them were invented to assist people with hearing loss. His mother was deaf. He knew that being deaf did not mean that you could not speak. He became a professor teaching deaf people to speak.

He was working on improving the telegraph which sent coded sounds over an electric wire which were heard and written into words. Only one message could be sent and received at a time. While working on improving the telegraph he came up With the idea of transmitting speech electrically. One day while experimenting with his technique called "harmonic telegraph" he discovered he could hear sound over a wire. Further experiments led to the invention of the TELEPHONE.

Do you Know who was he?

He was Alexander Graham Bell.



A famous quote is: "Necessity is the mother of invention." It means that the reason anything gets invented or improved is because there is a need.

Story 3 Wanting to address a need can lead a person to invent something.

A young boy loved to ice-skate. His ears, however, were very sensitive to the freezing cold of winter. He wanted to find a way to keep his ears warm so he could enjoy ice-skating. What he invented was EARMUFFS when he was just fifteen years old!



A girl ice-skating wearing earmuffs

When he wore them on, his friends laughed at him. However, when they realized that he was able to stay outside skating long after they had gone inside freezing, they stopped laughing. Instead, they asked him to make ear covers for them, too. The young boy who invented the earmuffs was Chester Greenwood.

Chester kept improving the quality of the earmuffs. He established Greenwood's Ear Protector Factory. For the next 60 years, Chester's factory made earmuffs, and earmuffs made Chester rich.



A child wearing earmuffs to keep warm

ACTIVITY

From the examples list the reasons that lead people to invent things.

ACTIVITY .1

A. Material needed:



- 2 paper cups.
- A sharp pencil or sewing needle to make holes.
- String (about 2 ft)

Procedure

1. Cut a long piece of string.
2. Thread the string through each cup and tie knots at each end to stop. Each and 2 stop it from coming out.
3. Move into position with you and a friend holding the cups at a distance that makes the string tight (making sure the string isn't touching anything else).
4. One person talks into the cup while the other puts the cup to their ear and listens, can you hear each other?

Do you know!

How does telephone work? (When you speak into the cup, the back of the cup vibrates; the vibration move through the string and vibrate the back of other cup and then to the ear of your friend)

Answer the following questions

1. Can you hear each other using a string telephone?

    ____

2. How well did it work?

    ____

3. How is a string telephone similar to a modern telephone?

    ____

4. Experiment with your string telephone by gently letting it fall loose. Can you hear each other now?

    ____

Teacher's note Have students try other modern telephone features on their string telephones. For example, does it work if they introduce "three-way calling" with three cups?

Chapter 3

NEW INVENTIONS FROM 1900 TO 2000

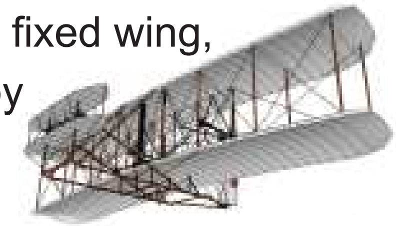
Over the last hundred years (1900-2000) many new objects have been invented. The list of some important inventions and their inventors from 1900-2000 are given below.



1900-1910

- **1901** Hubert Cecil Booth of London invented the electric vacuum cleaner. The vacuum cleaner was first invented in 1860.

- **1903:** The first manually controlled, fixed wing, motorized aircraft was is invented by Orville and Wilbur Wright.



- **1907:** ·The "Auto Wagon" a vehicle to replace the farm wagon was made by International Harvester.



1910-1920

- **1915:** ·The tank was invented by Ernest Swinton,



1920-1930

- **1920:** John Froehlich invented the first successful tractor in 1892. These were big, heavy and not too reliable. The tractors that are in use today were built by Charles Hart and Charles Parr in 1920.



- **1928:** Alexander Fleming was the first to notice the antibiotic properties of Penicillin. Many other medics and scientists developed penicillin for medical use.



1940-1950

- **1950:** The first cotton harvester was invented in the U.S. in 1850, but it was not until the 1940s that the machinery was widely used in the US.



- **1941-1945:** Frozen Foods was invented.
- **1946:** The microwave oven was invented by Percy Spencer.



- **1947:** ·The Transistor, was invented by John Bardeen and Walter Brattain under the supervision of William Shockley. With time the transistor became smaller, faster, more reliable, and cheaper to manufacture. This led to a revolution in computers and communication.



1950-1960

- **1951:** First use of nuclear power to produce electricity for households.
- **1957:** The first Personal Computer used by one person and controlled by a keyboard was invented by IBM.

- **1957:** The Soviet Union uses a liquid propelled rocket to send the Sputnik satellite or space probe into orbit.



- **1958-1959:** ·Co-creation of the integrated circuit by Jack Kilby and Robert Noyce.

1960-1970

- **1960s:** The first cell phone was made in the **1960's.** But it was not until **1973** that Dr. Martin Copper of Motorola brought to the market the first heavy duty cellular telephone. Models for use by people were introduced in the **1980's.**



1970-1980

- In **1971** Ray Tomlinson sent the first e-mail. He created the ARAP net and used his Send Msg feature to inform his colleagues on how to send e-mails.
- **1971:** The Lunar Roving Vehicle (LRV) is a small dune-buggy car that permitted the Apollo astronauts to drive from the place of their landing site on the moon to collect rock/soil The Lunar Rover was first used during Apollo 15 which launched on July 26, 1971.



- **1972:** The first video game console, used for playing video games on a TV was invented.



- **1973-1975:** ·The Internet protocol suite was developed by Vinton Cerf and Robert E. Kahn. It created the basis for the modern Internet.

1980-1990



- **1980:** The space shuttle Columbia was invented by National Aeronautics and Space Administration (NASA). Unlike rockets that were not reusable, the space shuttle, was made to house rockets in an airplane-type vehicle so that they could be reused for later flights.

- **1982:** A CD-ROM (Compact Disc Read-only memory) is a pre-pressed compact disc that contains data accessible to, but not writable by, a computer for data storage and music playback.



- **1985:** It was around 1985 due to the use of the Global System for Mobile (GSM) system that the first text message was sent.

1990-2000

- **1990:** The World Wide Web was invented by Sir Tim Berners-Lee in Switzerland:
- **1995:** Digital Video Disk (DVD) is an optical disc storage format, invented and developed by Philips, Sony, Toshiba, and Panasonic. DVDs offer higher storage capacity than Compact Disk (CDs).



ACTIVITIES

1. Between 1900 and 2000 there were a large number of inventions. In the table below classify the inventions given above into inventions that improve household work, farming, communication, space exploration, office work and play.

Household work	Farming	Commun- -ication	Space exploration	Office work	Play and entertainment

2. For each invention given show how they have changed the way people work and play.

Name of invention	**How it has changed the way we work**	**How it has changed the way we play**
Personal computer		
Microwave		
Mobile phone		

How the computer was invented

Do you know about the invention of the computer? You will learn about it below.


Analytical Engine

We are living in a new age today; the computer age. We say this because most of our day to day activities can be done by a computer. Can you name some activities that are done using a computer?

Charles Babbage, an English mathematician, invented the first computer of the world. He did this in 1833, a hundred and eighty years ago. The computer he invented was a calculating machine and was called the "Analytical Engine.

As time passed, the need was felt for a more suitable and reliable machine that could perform our work more quickly. In 1946, the first successful electronic computer called ENIAC (Electronic Numerical Integrator and Computer) was developed. It was big and heavy and powered by steam energy. It was the starting point of the development of the computers we use today.



The first electric computer



The personal computers that we use now a days

Teacher's note Explain about each part to students. For example, explain the central processing unit is also called the brain of computer as it controls the functions of computer. The keyboard and the mouse are tools used to put data or information into the computer. The monitor of the computer shows users the data inside the computer, speakers and a microphone could be adjusted with computers.

ACTIVITIES

1. List the main differences you can see in the pictures of the old computers and the computers we use now a days?

____

____

2. Edison and the Light Bulb

   (i) Answer the following questions

(i) What do you think life was like before the light bulb was invented?

____

(ii) What did people do to see at night or in the dark?

____

(iii) When do you think the light bulb was invented?

____

(iv) What kinds of problems did the invention of the light bulb solve?

____

(v) In what ways did it make life easier for people and society?

____

(vi) Do you know who invented the light bulb?

____

Teacher's note Encourage them to discuss on the questions as a way to get them to think about what life was like before the light bulb improved the quality of lives of people.

(ii) Read the story about Thomas Edison.

Edison began his career as an inventor. He invented many things. His first big invention was the phonograph or record player in 1877. Edison's phonograph was able to reproduce the recorded sound. It made him a celebrity!



Thomas Edison

He found a way to make motion pictures that people could watch.

His biggest invention was the light bulb. Edison loved to find things out for himself. He would try and try again, until he made things work. For one invention, Edison tried about 10,000 experiments.



His light bulb was the first practical commercial light bulb

(i) How do you think light bulbs have changed since Edison's day?

____

(ii) What other kinds of tools, machines, or other inventions use the light bulb?

____

(iii) How often do you use light bulbs? When? Where? How?

____

(iv) What would your life be like without them?

____

Teacher's note Encourage all answers with students supporting their views with examples for question iii (Items include table lamps and light fixtures, cars, airplanes, street lamps, advertising signs, flashlights, holiday ornaments, etc.)

Chapter 4

QUALITIES OF AN INVENTOR

ACTIVITY .1

Answer the following questions

(i) Are you ever curious about how things work?

____

(ii) Have you ever imagined something, or made up a story?

____

(iii) Have you ever tried something many times, and kept on trying until you did it?

____

If you have answered 'yes' to the questions in the activity above, then you have what it takes to be an inventor. But if you have written 'no' do not worry as trying to address a need may lead you to inventing something as well.

What qualities in a person, makes it possible for him/her to invent something? You have read many stories about inventors, what are the qualities of an inventor?

Curiosity. In many of the stories about inventions you will find that the inventors were curious, they wanted to know why something happened.

Imagination: Many inventions come about not from getting a new idea but improving something that already exists. Some of the best inventions are on things that already exist. The quality these inventors show is imagination. They are able to imagine how something can be and then they work to make their imagination a reality.

Determination: When people get new ideas many of them do nothing to take them forward. A few do. They start working on the idea and continue working on it until they are successful. They persist with their efforts until they are successful.

Belief in self: To continue working on something day after day requires inventors to belief in themselves.

Passion: An inventor cannot keep working on something day after day, if he/she is not excited about what he/she is doing.

Good problem-solving and scientific reasoning skills: Inventors need to have good problem solving and scientific reasoning skills as they need to look at what they did and why it was not successful and reason about the improvements they must make.

Strong artistic skills: Writing new books, composing music, coming up with a new style of architecture are also inventions. To create these things people need strong artistic skills.

ACTIVITY .2

Every one can be an inventor. Think of different needs / problems that you face in your daily life. Write those in column a. Then think of solutions to those problems and write them in column b.

Column-A Problems / needs	Column-B Ideas to fix the problems / needs

END OF UNIT EXERCISE

A. Answer the following questions

(i) What are inventions?

____

(ii) What do they do?

____

(iii) Why are inventors important?

____

(iv) In what ways did the invention of the light bulb change the way people lived?

____

(v) Can anyone be an inventor?

____

(vi) What kinds of qualities does an inventor need?

____

(vii) Before Edison invented something, do you think he thought about how it would affect people's lives? Why or why not?

____

____

B. Look at the numbers given to each model of telephone in the picture. Match the numbers with the models from old to modern. The first one is done for you.



C. List three differences between a telephone and a mobile phone?

1. ______________________________
2. ______________________________
3. ______________________________

(i) Write how each of these things have made life and work easier for us.






_____________ _____________ _____________ _____________






_____________ _____________ _____________ _____________

(ii) Choose one of these inventions and explain how it changed peoples lives?

____

____

____

(iii) Which of these inventions would be the hardest for the people to live without? Explain why?

____

____

____

D. You as the inventor anyone can be an inventor, as long as he or she is willing to work hard and to fail at first or even many times. Think and answer these questions.

(i) What is something that you find is hard to do?

____

(ii) Can you think of a tool or device that can help you do it easier?

(iii) If you were a young inventor, do you think inventing is a good idea? Why or why not?

____

(iv) Do you think it could be built?

____

(v) What kinds of inventions or technology would you use to build it?

____

(vi) How might this help people?

____

(vii) Do you think people would want to buy or use it?

(viii) Why or why not?

____

E. What is your favourite invention? Write a paragraph to tell us about it.

____

____

____

____

F. Inquiry

Look at the following pictures.






(i) Do you know who is doing the different kinds of work in these pictures?____

(ii) Who does it look like?____________________________________

(iii) Do an inquiry to find out how robots were invented, the kind of work they do, and predict the kind of work they will do in the future. Write a short report to share your findings below.

____

____

____

____

Unit 11· MACHINES MAKE WORK EASIER

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Tool

- Recognize that the people in past use tools to make their work easier
- Name the tools from the past given in the pictures and describe their functions
- Recognize that the people today use different tools and machines to make their work easier

Chapter 2 Simple machines

- Name some simple machines they see/use at home (scissors, Hammer, Pliers). Explain how simple machines make work easier

Chapter 3 Simple machines Push and pull

- Recognize that the position and shape of an object can be changed by a force (Push or Pull)
- Recognize that push or pull move things fast or slow

Chapter 4 A force can change the shape of an object

- Recognize from pictures of the past that force applied by humans and animals moved vehicles while today vehicles are moved by machines (Tonga, Bullock cart, Cycle, Pushcart ,Bus, Motorcycle and car)

Chapter 5 Using force for transportation

- Observe and describe how motion of vehicles can be changed by applying force (Speedup, Slowdown, Change direction)
- Recognize that greater the force, The greater the change in motion of an object

Chapter 1

TOOLS

Ali asked his mother if he could go to the cricket match. His mother told him that he could go, but before that he had to clean up the garden. She gave him a list of things he had to do. He read the list.

- Remove all the old and dead plants
- Rake the leaves
- Cut the grass of the lawn
- Collect the garbage and put it in the bin.

Ali was worried. He wondered how to complete the work before the game. His mother told him he could do it quickly if he used the tools in the shed.
Ali cut down the old and dead plants with the garden shears.
He raked the leaves with a rake.
He mowed the lawn with a lawn mower.
He gathered the plants, grass and leaves and threw them into the bin.
Half an hour later he was on his way to the cricket match.



Ali using tools to do his work

ACTIVITIES

1.

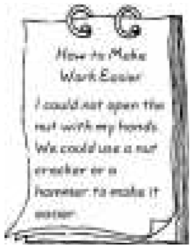
(i) What did Ali use to do the work quickly?

____

(ii) Do you think Ali would have completed his work in half an hour if he did the work with his hands? ______________________________

2.

(i) Take an almond. Try to open it with your hands. What happened? ______________________________



- What could make the work of cracking the nuts easier? ______________________________

(ii) Take a pile of papers. Try to tear the pile using your hands so you have two equal pieces. What happened?__________________

- What could make the work of the cutting the paper easier?

  ____

- Compare the pieces of paper cut by the scissors to the ones cut by hand. Which is cut better? ______________________



Using tools to make work easier is not new. Long, long ago, people used rocks for hunting. Then they started to make tools out of the rock to make the work of hunting easier. They cut the rock into arrow heads. These were used with bows and attached to long wooden sticks to make spears to kill animals for food and to cut and clean their skin to use for clothes. With the passage of time, the shape and size of these tools has changed but their functions have remained the same.

3. Look at the pictures carefully.



1. Describe them?

   ____

2. What do you think they were used for?

   ____

3. What do you think are the names of these tools?

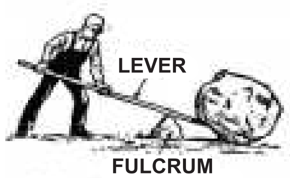
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Chapter 2 SIMPLE MACHINES

Simple machines are tools used to make our work easier. There are six basic types of simple machines.

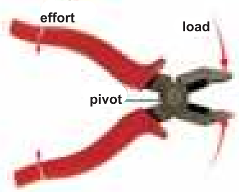
1. Lever

A lever is a rod used to lift or move objects. At one end we apply force and at the other end it lifts the weight. The see-saw, the scissors and pliers are levers.



Man lifting a stone with a lever







2. Wheel and Axle

The wheel and axle is a simple machine that reduces the friction, making the object easier to move things.





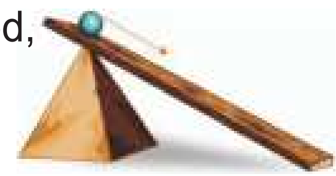






3. Inclined plane

A plane is a flat surface. If the plane is slanted, it becomes an inclined plane. An inclined plane helps us to move objects up or down.











4. Pulley



A pulley is made by wrapping a cord around a wheel. As the wheel turns, the cord moves up or down. We use pulley to raise and lower objects.






5. Wedge

Instead of using the smooth side of the inclined plane, you can also use the pointed edges to do other kinds of work. For example, you can use the edge to push things apart. Then, the inclined plane is a wedge.

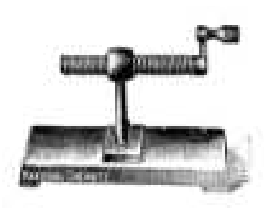





6. Screw



Take an inclined plane and wrap it around a cylinder.
Its sharp edge becomes another simple tool: the screw.



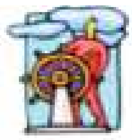






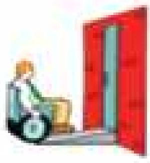
ACTIVITIES

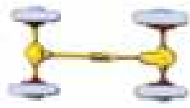
1. Look at the pictures. Write the type of simple machine in the given space under the picture.







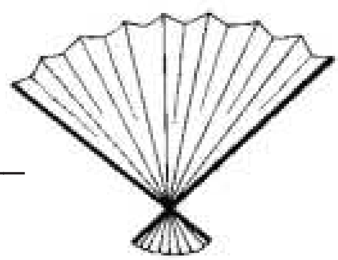




2. Match the simple machine with its correct definition.

Simple Machines	Definitions
Lever =	Something that reduces the friction of moving something.
Inclined plane =	Something that can hold things together or lift an object.
Wedge =	A ramp.
Screw =	Something that uses a rope and can change the direction of a force.
Wheel and axle =	Something similar to see-saw that can lift an object.
Pulley =	Something that can split an object apart.

3. Construct a paper fan. What kind of simple machine is the paper fan?



i) Show where the force is applied.

____

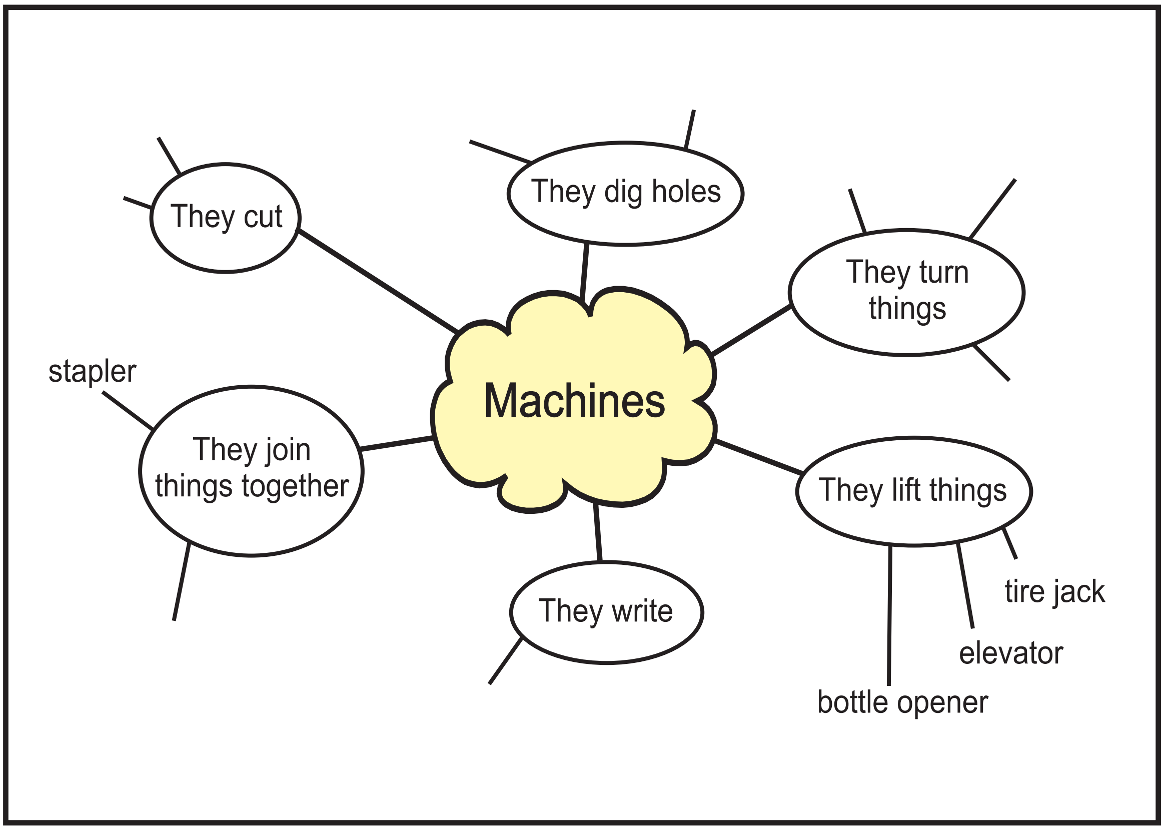
ii) What work is done.

____

iii) How does it make our work easier.

____

4. Machines are helpful for us in many ways. Some ways are written below. List the names of machines which can perform these work. Some have been done for you.



Chapter 3

PUSH AND PULL





Push and pull force

ACTIVITY .1





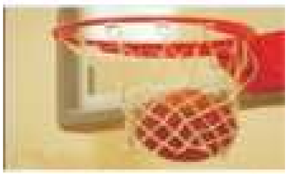
- Make two groups of students in the class.
- Group 1will go outside the class and group 2 will stay in the class.
- Close the classroom door and ask group 1 to open the door.
- Ask the students, what effort are they applying to open the door?
- Again close the door and ask group 2 to open the door.
- Ask the students, what effort are they applying to open the door?

Teacher's note Discuss the concept of pull and push. Some efforts are required to pull and push this is called force. Remind students that motion is a change of position. When a person throws a ball, he or she puts it in motion and the position of the ball changes. When a baseball player runs around the bases, his or her position changes. Explain the students the terms that describe the motions different objects make. For example, a top spins around and around, a swing moves back and forth, and a clock pendulum moves from side to side. When you do jumping jacks, you move up and down. Encourage students to think of things that can twist and turn, curve, or even go in spirals or loops. What things move under their own force, and what things need to be pushed or pulled?

2. Look at the pictures carefully .Write the word pull or push in the given spaces.



The arrow is _______________ into the target.



A basket ball is _______________ through the net.



Players are _______________ the rope.

3. Write or draw two activities that are done by pulling and two that are done by pushing.

A pull and a push is a force. It is an action that can change the shape and motion of an object. When a push or a pull force is applied any one or more of the following happen.



- The stationary objects move.



- The speed of the object increases.

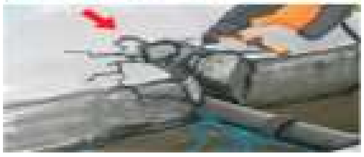
- The object changes the direction.



- The moving object stops moving.



- The shape of the object changes.



ACTIVITIES

1. Material required:

- A toy car
- chalk
- scale



Procedure:

- Divide the class into groups
- Provide each group a toy car
- Tell the students, to move the toy car by applying different amounts of force for each trial.
- First, have students apply a light push, measure the distance the car travelled and record their observations in the table below. Then apply a medium push, measure the distance and record their observations. Finally, apply a hard push, measure the distance and record their observation.

Amount of push on toy car	Distance travelled
Light push	
Medium push	
Hard push	

- Looking at the record of your observations in the table answer the given questions.

(i) With which push did the car travel the least distance?

____

(ii) With which push did the car travel the most distance?

____

(iii) How is this information help in your daily life?

____

B Material required:

- A toy car (for each group) to push across different surfaces

a rug, a smooth desk, a rubber mat, the ground / sand

Procedure:

(i) Divide the class into groups. Give each group a toy car to push across different surfaces.

(ii) Tell the students to first give the toy car a light push over all the surfaces, measure the distance the toy car travelled and the direction it travelled in and record their observations in the given table. Then have them give a hard push to the toy car over all the different surfaces, measure the distance it travelled and the direction and record their observations.

Amount of force	A rug		A desk surface		A rubber mat		Ground/sand	
	distance	direction	distance	direction	distance	direction	distance	direction
Light push								
Hard push								

Looking at the observations answer the following questions.

(i) When was it easiest to push the car?

____

Teacher's note Explain the position of the object is related to the amount /strength of the applied pull or push (force). Cricket players need to how hard to hit the ball for one run, four runs and six runs.

(ii) When did the car move the fastest? _______________ Why?

(iii) If you change the amount of force what would happen?

(a) If you increase the amount of force

____

(b) If you decrease the amount of force

____

(iv) Did the car change its directions?

____

(v) When was it moving straight? ____________________ Why?

(vi) When was it moving zigzag? _____________________Why?

(vii) When was it turning in another direction (right or left)

Why? ____

Teacher's note Try measuring the pushes to find out when it traveled the farthest explain amount of force increases or decrease the speed of the object.

Discuss how friction is a force that slows down moving things, and how friction is useful in your daily lives.

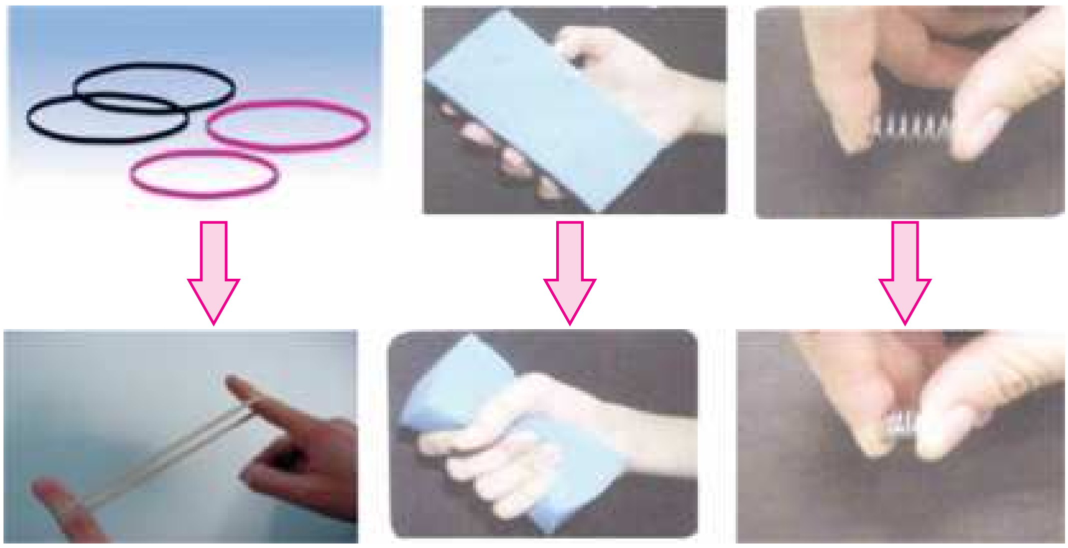
Chapter 4

A FORCE CAN CHANGE THE SHAPE OF AN OBJECT

You have learnt that a force can make an object move and it can change the direction an object moves in. A force can also change the shape of an object. This change can be temporary or permanent. The four types of force that can change the shape of an object are: Stretching, Compressing, Bending, and Twisting.

ACTIVITIES

1. Look at the pictures carefully. Force is being applied to change the shape of the objects. Can you name the type of force which will change their shape?



_______________ _______________ _______________

2. Draw pictures to show the two other ways to change the shape of an object by applying force.

Chapter 5

USING FORCE FOR TRANSPORTATION

The movement of people and goods from one place to the other is called transportation. Long, long ago the force applied by people and animals were used to move vehicles. People and animal drawn carts were used.




Now a days we use vehicles run by machines to transport people and goods from one place to another.

We use cycles, motor cycles, cars, rickshaws and buses on the roads.







Coal and electric trains, big ships and aeroplanes take us and our goods from one place to another.



END OF UNIT EXERCISE

A. Fill in the blanks

1. To draw water from a well we have to __________ at the rope.
2. To move a loaded trolley move we have to__________ it.
3. To stretch the bow, the archer applies the force that causes the change in its __________.
4. When two forces are acting on an object in the same direction (right) the object will move in the __________ direction.
5. When two equal forces are acting on an object in the opposite direction, the object will / will not move in any direction ______.

B. Answers the following questions

1. What is a force? ________________________________

   ____

2. Give two examples in which you push or pull to change the position of an object.

   (i) ________________________________

   (ii) ________________________________

3. Give two examples in which applied forces causes the change in the shape of the object.

   (i) ________________________________

   (ii) ________________________________

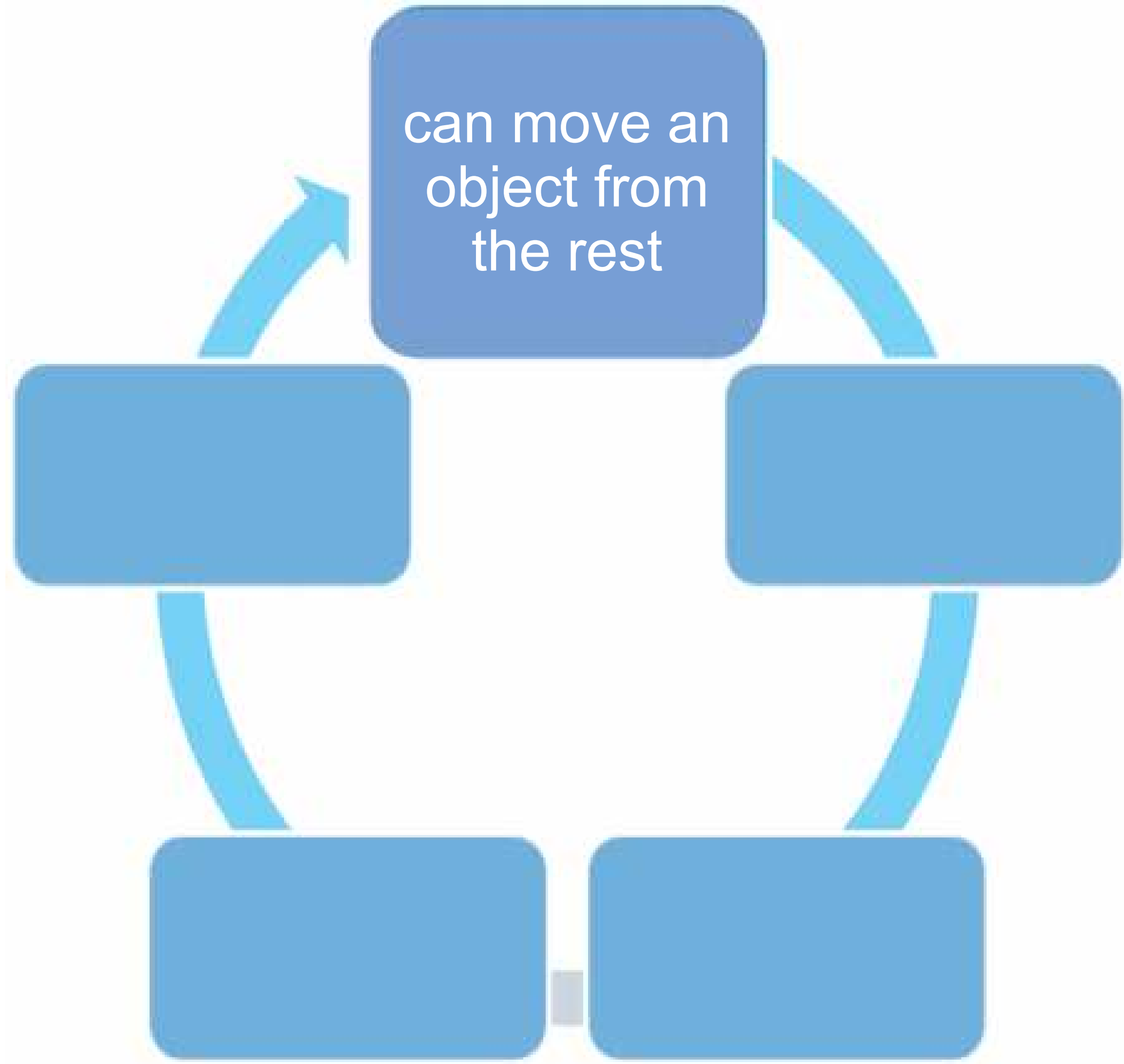
4. A blacksmith hammers a hot piece of iron while making a tool. How does the force due to hammering affect the piece of iron?

   ____

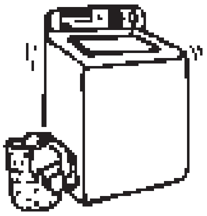
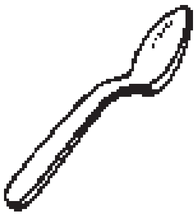
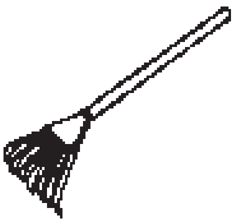
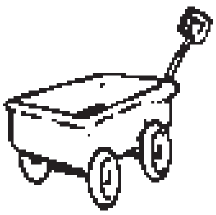
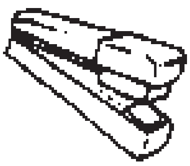
C. Draw three tools and say what they are used for

Name of tool	Drawing	What it is used for
Scissors		
Hammer		
Wheel barrow		

D. What force can do? Complete the diagram by filling in the blank spaces. The first one has been done for you.



E. Complete the table

Machine	Do you have it?	Who uses it?	How does it make work easier?
			
			
			
			
			
			

F. From the list given in the box, identify which vehicles are moved by humans and animals and which vehicles are moved by machines

tonga bus bullockcart pushcart car motorcycle train motorcycle

(i) Vehicles moved by animals and humans ____________________

(ii) Vehicles moved by machines ____________________

G. We use many simple machines to make our work easier. Names three examples of each type of simple machine

1. Lever: (i) ________ (ii) ________ (iii) ________

2. Wheel and axle: (i) ________ (ii) ________ (iii) ________

3. Inclined plane: (i) ________ (ii) ________ (iii) ________

4. Pulley : (i) ________ (ii) ________ (iii) ________

5. Wedge : (i) ________ (ii) ________ (iii) ________

6. Screw : (i) ________ (ii) ________ (iii) ________

Unit 12. MAKING THE WORLD A BETTER PLACE

Students Learning Outcomes (SLOs)

In the following chapters, students will be able to:

Chapter 1 Our rights and responsibilities

- Describe the activities that individuals perform for the welfare of the local community.

Chapter 2 Public services

- Identify key public issues in their local area (drinking water, school, sewage system etc.)
- Inquire into one issue, identify its causes, suggest solutions and take a responsible action to solve the issue.

Chapter 3 Welfare work

- Recognize that people organize themselves to meet their needs.
- Describe what government does to meet the needs of the people.
- Suggest ways the government and people can work together to meet people's needs in the area.
- Identify ways they can demonstrate good citizenship (playing fairly, helping others, following rules, taking responsibility for one's actions.)
- Identify the personal traits of good citizens (trustworthiness, respect for law, responsibility, honesty and respect for the rights of others.

Chapter 1

Our rights and responsibilities

Children have many rights. The right to health, education, play and safety are very important children rights. It is the job of the government to make sure that all children have their rights. Therefore, the government has opened schools and hospitals throughout the country. They have built parks and playgrounds for children to play in. The police take care of our safety and security.



Children playing football in a park



Children receiving polio drops to prevent polio

But the government has not been able to meet the needs of every child. Therefore, many generous people and non-government organizations have set up schools and hospitals so that many more children get their rights.

ACTIVITY

1. You have the right to health, education, play and safety. Write one sentence to explain why each right is important.

Health: ____

Education: ____

Play: ____

Safety: ____

2. For each right, state three responsibilities you have.

Health: (i) ____

(ii) ____

(iii) ____

Education: (i) ____

(ii) ____

(iii) ____

Play: (i) ____

(ii) ____

(iii) ____

Safety: (i) ____

(ii) ____

(iii) ____

Chapter 2

Public services

A public service is a service provided by the government for the people. These services are so important for our life, that the government provides them to all its citizens. Public services often include: education, health care, recreation, safety, water supply, housing, electricity.

Education

All children have the right to education. They receive education in schools and colleges. No person or country can develop without education. Education helps us to:

- Learn to read and write
- Become good human beings
- Become responsible citizens
- Earn a living
- Think of ways to make life better

To provide children their right to education the government has built many schools and college. Because these are not enough many non-government organizations have also set up schools all over Pakistan. With the right to education comes the responsibility of parents to send their children to school everyday and the responsibility of children to study hard and do well.



Fig 2.1 A view of school and college

ACTIVITY

List five things that you can do to fulfill your responsibility to learn and do well in school.

(i) ______________________________

(ii) ______________________________

(iii) ______________________________

(iv) ______________________________

(v) ______________________________

Play

Children have the right to play. Play is fun. It also keeps us healthy. In school, sometime is set aside for play. This is not enough, therefore, there are parks and playgrounds for children to play. Parks usually have lots of green grass, flowers and shady trees. Swings, see-saws, merry-go-rounds and slides are provided for children. It is our responsibility to keep parks clean and use the slides and see-saws properly.





Fig 2.2 A view of playground and park

ACTIVITY .1

Draw a picture of the park you would like to play in. Colour it and put it on the display board for everyone to see.

Safety and Security

Children have the right to safety. Our family keeps us safe and secure at home. The police take care of our safety and security in the society. It is the work of the police to maintain law and order in society. Should anyone break the law, it is the duty of the police to catch them.


Police protecting us

There is another type of police, the traffic police. There work is to ensure the smooth flow of traffic on the road so as to prevent accidents. It is our responsibility to follow the traffic rules.


Traffic Police ensuring safety on the roads

ACTIVITY

2. List three (3) things you can do to be safe at home and three (3) things you can do to stay safe in your neighbourhood.

Home	Neighbourhood
(i) ____________	(i) ____________
(ii) ____________	(ii) ____________
(iii) ____________	(iii) ____________

Health Care

Children have the right to life. To ensure our right to life we need to stay healthy.

We can keep healthy by

- eating good food



- drinking clean water



- keeping clean



- playing regularly



- going to bed early and sleeping for 8 to 10 hours



- getting vaccinated



Should you get sick there are health care centers and hospitals where health care workers or doctors check us and tell us what to do to get better.

3. Make a poster showing 4 ways to keep healthy. Put your poster on the display board.

Chapter 3

Welfare work

We have just learnt about the public services that are provided by the government for its citizens. The government, however, has not been able to provide for all its citizens because its resources are limited and the needs are great. Seeing the needs of the poor and needy, many generous people and non-government organizations (NGOs) have established institutions to provide for their welfare. Some of the welfare institutions they have set up are explained below.

ACTIVITY

1. Find out and write the names of three (3) welfare organizations and the work each does for the welfare of the people.

(I) ____

(ii) ____

(iii) ____

Orphanages

There are many children whose parents have died or who are abandoned. They are known as orphans. Many orphanages have been set up to provide a home to these children. Below are two examples.



The SOS Children's Villages take care of children who are orphaned or abandoned. Each village consists of many houses.

A few children live in each house. They are cared for by a women who is like a mother. The mother and children live together just like any other family. All the families in the village live together like good neighbours.

The Edhi Foundation has set up Apna Ghars all over Pakistan. Apna Ghars provide orphans and children who have run away from home a safe play to stay. Children are also provided with food, clothes and care.

Moreover, many charitable services have been rendered by Edhi Foundation, such as Hospital and Ambulance services are worth mentioning. Edhi Sahib was a vanguard of the oppressed humanity. He had devoted his life for the charitable services of mankind. The nation is proud of his services.







Edhi apna ghar

Centers for special children

There are many children who are physically impaired, that is, they are blind, deaf or unable to walk. Some children are intellectually impaired, that is they develop more slowly than other children. Many of these children go to regular schools. Others go to schools specially set up for them. Yet others, are looked after in special centers. Below are two examples of special schools and centers.

ACTIVITY

2. Bring a toy, a book or some clothes you like to school. Collect them. Visit an orphanage and give one item to each child there.

The Family Educational Services Foundation run Deaf Reach schools all over Pakistan. Here many deaf children receive a quality education. In addition, the organization runs training programmes for teachers and parents. The organization also works to improve the quality of life of children who are physically or intellectually impaired and their communities by starting social uplift schemes.



Dar-ul-Sukoon is a home for children who are intellectually impaired. Dar-ul-Sukoon provides a safe and caring home for these children. Specially trained people work with the children to assist them to eat and take care of themselves. Field trips and parties are arranged so that the children get a chance to play, have fun and be proud of themselves.



ACTIVITY

3. Blindfold yourself and then (i) go from your desk to the door of the classroom (ii) write a sentence (iii) put your books in your bag. Write two sentences to show how you felt.

____

____

END OF UNIT EXERCISE

A. Fill in the blanks

1. Three public services are

   (i) ____________ (ii) ____________ (iii) ____________

2. Three welfare services in my community are

   (i) ____________ (ii) ____________ (iii) ____________

3. Three important rights of children are

   (i) ____________ (ii) ____________ (iii) ____________

4. Three important responsibilities of children are

   (i) ____________ (ii) ____________ (iii) ____________

5. Three good qualities I have are

   (i) ____________ (ii) ____________ (iii) ____________

B. Answer the following questions

1. What is welfare work?

   ____

2. Why is there a need for welfare organizations?

   ____

3. What services do hospitals provide?

   ____

C. Complete the table. For each right you have, identify three responsibilities you will fulfill.

Rights I have	Responsibilities I will fulfill
Education	(i)
	(ii)
	(iii)
Play	(i)
	(ii)
	(iii)
Health care	(i)
	(ii)
	(iii)
Right to safety and security	(i)
	(ii)
	(iii)

D Inquiry

1. Find out about a welfare organization in your community. Fill in blanks below to create a fact sheet.

What is the name of the organization? ___________________________

When was it started? ____

Who started it? ____

Why was it started? ______________________________________

What work does it do? ____________________________________

Who does it serve? _______________________________________

What ways can you help the organization? ____________________

2. List the problems in your community. Choose one of the problems and write it down the causes of the problem. List the effects of the problems on the community. List two to three solutions. What action can you take to improve the situation.

Take the action

What success did you have? _______________________________